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A

SYSTEMATIC ARRANGEMENT

OF

BRITISH PLANTS;

WITH AN EASY

INTRODUCTION TO THE STUDY OF BOTANY.

ILLUSTRATED BY COPPER PLATES.

BY WILLIAM WITHERING, M.D. F.R.S.

Member of the Royal Academy of Sciences at Lisbon; Fellow of the Linnean Society; Honorary Member of the Royal Medical Society at Edinburgh, &c.

THE FIFTH EDITION,

IN FOUR VOLUMES:

CORRECTED AND CONSIDERABLY ENLARGED

BY WILLIAM WITHERING, ESQ.

Late of the Universities of Glasgow and Edinburgh; Extraordinary Member of the Royal Medical Society; Fellow of the Linnean Society, &c.

" *Primus gradus sapientiæ est res ipsas nosse.*" LINN.

" *Increscunt quotannis Scientiæ, emendantur quotidie, et ad fastigium suum optatum sensim sensimque, plurium virorum opera et studio junctis, feliciter properant.*" THUNBERG.

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(Continued.)

ALGÆ.

LI'CHEN. Male ; scattered wart-like substances. Fem. smooth Saucers or Tubercles in which the seeds are imbedded. See vol. i. p. 370.

SUBDIVISIONS OF THE LICHENS.

A. Substance like powder.
B. (1) Crustaceous, granulated; with Black Lines.
(2) Crustaceous, granulated; with Tubercles.
(3) Crustaceous, granulated; with Saucers.
(4) Crustaceous, granulated; with both Tubercles and Saucers.
C. Crustaceous, tiled, spreading, flat, fixed down to the substance on which it grows.
D. Somewhat crustaceous, leaf-like, tiled, loose.
E. Somewhat crustaceous ; bearing cups shaped like a jelly-glass.
F. Somewhat crustaceous ; shrub-like; shooting into branches resembling a shrub, or branches of coral.
G. Somewhat crustaceous: Thread-like.
H. Leafy, herbaceous.
I. Root single; in the centre of the plant.
K. Foliage tough, like leather.
L. Gelatinous. Foliage when fresh and moist, like jelly.

A. *Substance like powder.*

L. Very white ; between powdery and crustaceous. al'bus.
Hoffm. enum. 1. 3-*E. bot.* 1349-*Dill.* 1. 2-*Fl. dan.* 840. 4.

Very nearly allied to *Lichen corallinus*. Huds. Follows the figure of the plants on which it grows, giving them the appearance of having been white-washed. Dill. Crust thin, white, brittle, when on moss; thick, soft, mealy, when on bark. Under the microscope appears to consist of heaps of spherical globules sticking together, of a greyish colour, and dusted with a white powder. When wet, it is often greenish, and when rubbed between the fingers has an unpleasant smell. HOFFMAN, enum. 7.

(White Lichen. Lepraria alba. E. bot. E.)

Byssus lactea. Bot. arr. *ed.* ii. On old decayed mosses and small branches of heath. Wales and North of England and Scotland. P. Jan.---Dec.

inca'nus L. Hoary, powdery; like scattered meal.

Dill. I. 3.-Hoffman, enum. 1. 6.-E. bot. 1683.

It has the appearance of a very small crustaceous Lichen. LINN. Even through an eye-glass it appears only as a shapeless powder of a greyish white colour, sometimes intermixed with green and yellow. DILL. When magnified it appears to consist of particles of different figures, egg-shaped, oblong, compressed, open at the top, pouring out a reddish powder. From these arise other larger particles, folded at the margin, sending out numerous oblong corpuscles, rising up and spreading, turned back at the edge and throwing out a yellow meal. HOFFM. enum. 8.

Soft Mealy-crusted Lichen. Byssus incana. Bot. arr. *ed.* 2. Gravelly soil on the sides of ditches, near high roads, on decayed moss and wet trunks of trees in very shady situations. A. Oct.---June.

cine'reus L. Ash-coloured, powdery; covering the surface of rocks.

It will grow upon the barest rocks and stones. Hoffman thinks this differs from the L. antiquitatis in age only. It is found on rocks and stones of every kind which have been long exposed to the air, giving them a greyish colour through the whole year, but is in itself so minute as to be hardly distinguishable.

Byssus saxatilis. Bot. arr. *ed.* ii. Limestone rocks and stones in Westmoreland, Cumberland, Yorkshire, and Derbyshire. P. Jan.---Dec.

antiquita'tis L. Black: powdery.

Hoffm. enum. 3. 5, *right hand half-(Dill.* 1, 18, *cited in Linn. mant.* 510, *and Gmelin is B. nigra, as is the B. antiquitatis of Weis.)*

Black, resembling irregular dots of ink made with a pen, solitary or confluent, very black when wet, greyish black when dry. When magnified they appear like ill-formed warts, crowded together. HOFFMAN.

Byssus antiquitatis. Bot. arr. *ed.* ii. Old walls, rocks, and large stones, common. P. Jan.---Dec.

L. Blood-coloured, powdery, growing on stones. Jo'lithus.

Mich. 89. 3-*Fl. dan.* 899. 1.

It has a very strong scent of violets, especially after rain. Linn. Very red when young ; when old, yellowish green.

Byssus Jolithus, Bot. arr. *ed.* ii. Rocks and stones of quartz, in most shady places. (The miraculous bloody stains on the stones at the bottom of the Holy Well of St. Winifred, in Flintshire, are occasioned by this vegetable. E.) P. Jan.---Dec.

(Linnæus in his Tour through Oeland and East Gothland observes, "Every where near the roads I saw stones covered with a blood-red pigment, which, on being rubbed, turned into a bright yellow, and diffused a smell of violets, whence they have obtained the name of *Violet Stones* ; though indeed the stone itself has no smell at all, but only the moss with which it is dyed." Starke. E.)

L. Yellow, powdery ; growing upon wood. fla'vus.

E. bot. 1350-*Hoffm.* 1. 4-*Dill.* 1. 4-*Fl. dan.* 899. 2.

Forming a very thin and wide spreading coat on the substances on which it grows ; yellow or brimstone coloured ; on rocks thicker, and of a lemon colour. The microscope shews it to consist of roundish or oval globules, single or in clusters, somewhat hairy, falling into a very fine deep yellow powder. Its colour sometimes changes to tawny or greenish. Hoffman. It has been observed to continue on the same spot, and apparently in the same state for several years.

(*Yellow Lichen. Lepraria flava.* E. bot. E.) *Byssus candelaris.* Old pales, bark of trees, and old walls. A. Sept---June.

L. Green, powdery. botryoi'des.

Hoffm. enum. 1. 2.-*Dill.* 1. 5-*Fl. dan.* 899. 3.

Consists of dark green globules crowded together, the size of tobacco seed, appearing somewhat gelatinous in the microscope. Dill. Covering the earth, or stones with an intense green colour, often with a cast of yellow, cracking when dry into irregular polygons. Globules when magnified, semi-pellucid, sprinkled with a yellowish powder. When old, the whole crust changes to a rude gelatinous mass. Hoffman.

Byssus Botryoides. Bott. arr. *ed.* ii. Bark of trees, on walls, and on moist and shady ground. P. Jan.---Dec.

rugo'sus. L. Fructifications unbranched black lines and dots, set thick together; crust whitish.

Dill. 18. 2-*Hoffm. enum.* 2. 5.

Crust very thin, white, with numerous black spots and lines. Dill.

Common on the bark of trees. P. Jan.---Dec.

scrip'tus. L. Fructifications black branching lines resembling written characters; crust whitish.

E. bot. 1813. *Mic.* 56, *Lichenoides.* 3 --*Hoffm. enum.* 3. 2, *a. c. d.*—*Dill.* 18. 1, *and* 55, 9, *being the ground on which a Bryum is depicted.*

Crust whitish, very thin, marked with various black lines like Arabic characters, by which it is readily distinguished. Dill.

On elms and oaks. P. Jan.---Dec.

Var. 2. Fructifications large, black, in high relief, of no regular figure, bearing a rude resemblance to Hebrew characters.

Hoffm. enum. 3. 2. *f (not e. as misprinted.)*

(*Black-letter Lichen, Opegrapha scripta,* Achar, method *E. bot. L. Scriptus.* Achar prod.- Linn. Huds. &c. E.)

Mr. Griffith by his specimens and observations, has satisfied me, that the above are nothing more than a Sphæria in a young state, before its proper fructifications are formed.

B. (2) *Crustaceous, with Tubercles.*

fagin'eus. L. Tubercles, white, mealy: crust white.

Hoffm. enum. 2, 4. *and* 7. 5-*E. bot.* 1713-*Mich.* 53. 2 *and* 1--

Dill. 18. 11. A. B.

At first powdery, when older granulated. *Tubercles* nearly flat, white, with a thin border. Dill.

On the bark of the beech and hornbeam, &c. P. Jan.---Dec.

Var. 2. Tubercles whitish, wrinkled; crust ash colour:

Dill. 18. 11. C. D.

Dillenius thinks these the same as 1; C. growing on the smoother bark of younger trees, and D. as old and growing on walls.

Bitter Powdery-shielded Lichen. L. fagineus. Linn. Huds. and E. bot. L. *albescens.* Gmel. syst. veg. and Huds. On the bark of hornbeam, beech and ash. Huds.---[And lime trees. Mr. Hollefear.] P. Jan.---Dec.

L. Tubercle white, central: crust white. betuli′nus.

Crust nearly ½ inch diameter, circular, thin, fibrous. *Tubercle* solitary, hemispherical, nearly of the size of a hemp seed. HUDS.

On the trunk and branches of the birch. A. Sept.---April.

L. Tubercles white, not bordered, hemispherical: crust white. ac′teus.

Jacq. coll. iii. 4-*Hoffm. enum.* 4. 6.

Tubercles sometimes very pale greenish brown in the center.

On rocks and stones. HUDS. 526. P. Jan.---Dec.

L. Tubercles white, not bordered; crust black. atro-al′bus.

Jacq. coll. ii. 14. 1.

It is difficult to say which colour forms the crust. LINN. *Crust* wide spreading, thin, firmly adhering, mealy, rough, black, thickly set with very small sub-sphæroidal tubercles, of a grey white colour. JACQ. *Crust* either blue grey, black or white, or rather, the proper crust is black, but this is very thin, very closely adhering, not always present, and then its place is sometimes supplied by the outer grey coat of the tubercles spreading upon the stone. Tubercles black, but before the crust which envelopes them breaks open they appear grey; border none.

On rocks. [On flints in the Isle of Wight.] P. Jan.---Dec.

Var. 2. Tubercles both black and white; border none.

Such is the case with specimens which Mr. Relhan and Mr. Dickson favoured me with. Linnæus seems, in his different works, to have described both these under the name *atro-albus*. I find no figure of this 2d variety. This grows upon peat earth as well as upon rocks.

L. Tubercles black, plaited and wrinkled, of different shapes: crust none. sim′plex.

E. bot. 2152---*Linn. Tr.* ii. 28. 2.

Has no ground or crust, but consists of small tubercles which in the microscope appear wrinkled, and of various irregular forms. Not *L. simplex* of Gmel. *syst. veg.*

It grows upon a kind of grey slate, which it covers to the extent of many inches together. I have also found it on sand stone. Rev. HUGH DAVIES in Linn. tr. ii. 283.

calca'reus. L. Tubercles black, not bordered; crust clear white.

Dill. 18. 8.

Hard, stony, firmly fixed to the rocks, gritty when chewed, rather rough, cracked, set with minute white eminencies, white within, thickness of half a straw's breadth. *Tubercles* rarely found, scattered, black, not bordered. DILL. black within, which distinguishes it from the L. *sanguinarius.*

On most of the rocks of Glyder mountain, Caernarvonshire. DILL. On limestone rocks in the north of England and Wales. HUDS. On the Pentland Hills. LIGHTF. On old walls. RELH. Jan.---Dec.*

immer'sus. L. Tubercles black, immersed as it were in the stone; crust white.

Hoffm. lich. i. 12. 2 *to* 4---*E. bot.* 193.

Crust a white spot, scarcely distinguishable from a calcareous stone; in some instances mealy, in others white as milk, often intersected by black lines; marked with minute black hollow dots. *Tubercles* immersed in the substance, small, black, roundish, flat; at length convex, and escaping from the stone, leaving a cavity. HOFFM. *Crust* sometimes greenish. WEBER.

On pieces of chalk. RELH. *n.* 1026, [On ragstone and limestone long exposed to the weather.] P. Jan.---Dec.

sanguina'rius. L. Tubercles black, not bordered; bright red within; crust white, polished. *E. bot.*

Hoffm. lich. 41. 1--*E. bot.* 155--*Hoffm. enum.* 5. 4 *and* 5.

WIEGEL obs. 2. 13, has been quoted as this plant, but he describes the tubercles as filled with a black powder; and the crust being of a grey green. HOFFM. enum. 5, 4 and 5, called L. *sanguinarius*, has black lines upon the crust, though the tubercles seem nearly the same, being filled with a rust-coloured powder. DILL. 18. 3, quoted by Linn. has also black lines upon the crust, which is described as grey green; the contents of the tubercles are not mentioned, but had they been bright red within, such a circumstance would have hardly escaped him. The L. *sanguinarius*, in JACQ. col. iii. 5. 3, *b*, seems to be the same as Wiegel's plant.

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* This species is so peculiar to limestone rocks, that wherever that stone occurs among others, it may be distinguished at the first view by this plant growing upon it. When dried, powdered, and steeped in urine, it is used to dye scarlet, by the Welch and the inhabitants of the Orkneys. The colour is said to be very fine.

The above enquiry was excited by the just remarks of Dr. Smith in E. bot. p. 155, whose description, aided by an excellent figure, must for ever remove all further uncertainty respecting this hitherto dubious species.

On trees, and on granite rocks at Cromford Moor, near Matlock. Dr. J. E. SMITH.

L. Tubercles black, not bordered; crust whitish, granulated. granifor'mis.

E. bot. 1464--*Hagen.* 1, 2.

Crust stony, composed of minute granules, agglutinated in lines like the fibres of wood. *Tubercles* black, rather larger than the particles forming the crust. HAGEN.

Grained Lichen. On pales and old willows. DICKS. 10.

L. Tubercles black, sitting or on pedicles: crust white, rough with fungous papillæ. DICKS. ocula'tus.

E. bot. 1833-*Dicks.* 6. 3.

Crust elevated into short papillæ set very close together, both simple and branched. *Tubercles* growing on the crust as well as terminating the papillæ and branches, sometimes flat and depressed, sometimes convex. DICKS.

Eye-like Coralline Lichen. Rocks and stones, Scotland.

L. Tubercles black, in clusters, not bordered; crust hoary, mealy. musco'rum

Jacq. coll. iv. 7. 1-*Relh. at p.* 424-*Fl. dan.* 1003. 1.

Crust mealy, friable, grey or greenish. *Tubercles* sometimes flattish when dry, otherwise convex, shining, black, numerous, large, turban-shaped when old. WEBER.

On Mosses. [On heaths. Mr. WOODWARD. Gogmagog Hills, RELHAN.] P. Jan.---Dec.

L. Tubercles black, globular; crust grey white. pilula'ris.

Linn. Tr. ii. 28. 1.

Some of the younger fructifications are saucer-like, with elevated borders of the same colour; these are but few, and seem soon to lose that form. *Tubercles* black within, not bordered, though sometimes there seems to be an indistinct border of the same colour as the tubercle.

Found in Bowdowen Park, Anglesea, by the Rev. Hugh Davies. Linn. Tr. ii. p. 283. [On the summit of the Rowley hills.]

gelasina'tus L. Tubercles black, globular, shining, dimpled, not bordered; crust white, puckered and raised into nearly hemispherical portions.

PLATE XXXI. f. 1.

Tubercles hollow and black within, placed on the protuberances, as well as in the interstices of the crust. *Crust* white, tender, hollow and white under the protuberances.

Hoffman's figure, in his Plant. lichen. T. 21. fig. 1. f. nearly resembles it, but the tubercles are less distinctly formed, and the crust yellowish.

First found by J. WYNNE GRIFFITH, Esq. On oak trees in Garn Dingle, near Denbigh.

cineras'cens. L. Tubercles black, with whitish borders: crust grey white.

Hoffm. enum. 4. 3.

Crust rough, stony, varying much in thickness, grey white. *Tubercles* convex, black, sitting, a little raised at the edge, surrounded by a white border, rather raised and scolloped when old. JACQ. Outer border of the crust black. LINN. L. *cinereus.* LINN. HUDS. Bot. arr. *ed.* ii. Mr. Griffith thinks that this, the *rupicola*, and the *compositus*, insensibly run into each other, forming in reality but one species, which he calls *L. varians.* (And Dr. Smith is of opinion, that this plant is only a variation of *L. ater:* so perplexing are the intricate variations of this numerous tribe to the most accurate and persevering observers. E.)

Rocks; large stones. P. Jan.---Dec.

Var. 2. Tubercles larger, more elevated, white within, border grey white, scolloped, crust grey white.

Jacq. coll. ii. 14. 5. b.

Specimens from Mr. Griffith, agreeing well with the figure of Jacquin, but without the leaf-like appearance represented at the edge of it.

On fine grained granite.

con'fluens. L. Tubercles very black, not bordered, distinct when young, confluent when old: crust blue grey, pale brown or white.

Web. 2-*Hoffm. lich.* 19. 1.-*E. bot.* 1964.

Crust grey, a line or more in thickness, wide spreading, cracked, white when broken. *Tubercles* very black, coalescing, so as often to cover the whole of the crust. Hoffman. *Tubercles* cracked on the surface, sunk in the crust; oftener rather hollowed than raised, and then obscurely bordered with a smooth black edge. *Crust* grey throughout, sometimes growing on a thin-spread, black ground.

Confluent Shielded Lichen.

Var. 2. Surface reticulated.

Mich. 54, *ord.* 37. 7.

Rocks, England. Dicks. 9.-Scotland. Dr. J. E. Smith: [Garreg-wen, on limestone rocks; not common. Mr. Griffith.]

Var. 3. Tubercles globular; crust grey white.
Lich. pilularis, (which see.)

Var. 4. Crust rough, brown, much cracked: tubercles flat topped.

[On stones upon Bettws mountain, Denbighsh. Mr. Griffith.]

Var. 5. Fructifications saucer-like, changing to large black tubercles; crust brown, granulated; granulations large, resembling tubercles.

Specimen from Mr. Griffith; growing on Schistus. The crust has a pale brown outer coat, which within has a greenish cast, covering a white matter which forms the principal substance of the crust. It is granulated and cracked on the surface; the granulations large, somewhat elevated, and not unlike tubercles. The fructifications are at first like saucers with a brown border; this soon disappears, and they rise up in the form of large black nearly globular tubercles.

This curious specimen seems to shew that the Lichens *confluens*, and *pilularis* are the same plant under somewhat different circumstances of growth. Mr. Griffith also suggests, that our 4th var. may be the *L. pinnatus* of Dickson, which I think probable, and is, as he observes, the plant in its oldest and most weather-beaten state.

Var. 6. Crust brown, changing to black.

In this instance the black colour of the fructifications seems to extend itself over the otherwise brown crust. *Tubercles* gently convex, border brown black. They are white within, and the crust greenish underneath, as in the 5th variety.

Found by Mr Griffith, on stones and walls near Bettws mountain, and near Garthewin, Denbighshire.

L. Tubercles very black, not bordered, crowded: crust whitish with a glaucous tinge, spreading, rather leaf-like at the edge. canes'cens

Dicks. 2. 5,-*E. bot.* 582-*Dill.* 18. 17. A.

Crust circular, 1 to 2 inches diameter, pressed to, hoary, wrinkled, lobed, resembling small leaves cohering together, sprinkled in the centre with mealy globules. *Saucers* small, numerous in the centre, the margin blunt, of the colour of the disk. Being rarely found with *saucers*, it has been supposed to belong to the L. *pallescens*. DICKSON. Has nothing in common with L. *pallescens*. Mr. WOODWARD. *Crust* adhering very closely to the bark of trees, and the sides of walls, in circular patches from $\frac{1}{2}$ to three inches over, ash-coloured, wrinkled, less wrinkled in the centre, rather leafy at the edge. DILL.

L. incanus, RELH. n. 846. L. *canescens*, and L. *canus* of GMELIN Syst. veg. Under one name described as producing tubercles, under the other as bearing saucers. Mr. Dickson speaks of saucers, Mr. Relhan of tubercles. My specimens are tubercled. It may prove one of those Lichens which occasionally bears the one or the other.

Walls and trunks of trees. [Very common on old trees, but rarely in fructification. Mr. WOODWARD. About Garn, but chiefly on hawthorn. Mr. GRIFFITH.]

cæruleo-ni′gricans. L. Tubercles blackish, not bordered; crust bluish.

Dicks. h. s.--Hoffm. lich. 32. 3--*E. bot.* 1139.--*Fl. dan.* 1064. 1. *(not Dill.* 82. 2, *as in Lightf.)*

Crust fixed to the earth, or to decayed mosses, composed of whitish ash-coloured granulations. *Tubercles* very irregular in shape, ash-coloured when young and small, blackish when old.

Black and Blue Lichen--Patellaria vesicularis. HOFFM. L. *candidus*. WEBER, and Fl. dan. On the Highland rocks, but not common. LIGHTF. 805. Norfolk and Suffolk. Mr. WOODWARD. (Cambridgeshire, Rev. Mr. HEMSTED. E.)

P. Jan.---Dec.

ni′ger. L. Tubercles black, roundish, not bordered; crust black.

E. bot. 1161.-*Hoffm. enum.* 3. 6,*but the tubercles represented as if white.*

Crust granulated, hard, dry, very widely spreading. *Tubercles* convex, of the size of mustard seed. HUDS. In its young state the crust is thin and smooth. When more advanced the crust cracks, and the fructifications begin to appear, but at first not raised above the crust, and not easily to be distinguished from it. When older still the crust is very much cracked, the portions raised up, convex, granulated; the tubercles very numerous, raised above the crust, convex, smooth. The specimens which gave rise to these remarks were communicated by Mr. Griffith, also another specimen which had grown in the shade, wherein the crust is thin and even, not black but blackish brown; the tubercles black with a smooth polished surface.

Mr. Griffith has discovered a further change in this Lichen, as curious as it must be unexpected, and which is sufficient to shew that many discoveries yet await our enquiries in this singular tribe of plants. I shall transcribe his own words.---" In the more advanced state of L. niger small glaucous leaves issue from the dark ground, which in time form the imbricated L. plumbeus. The dark ground (which is now of a spongy texture,) becomes elevated, and forms that cork-like substance which is attached to the L. plumbeus."

Inky Lichen. Rocks and large stones about St. Ives, Cornwall, plentifully. [Rocks about Kirkby Lonsdale, Westmoreland, Dr. J. E. SMITH. About Garn, abundantly. Mr. GRIFFITH; on Lime-stone.] P. Jan.---Dec.

L. Tubercles black, not bordered; crust brown. fusco-a'ter.

Hoffm. lich. 54. 1.--1. *Jacq. coll.* ii. 14. 3, *as on rocks*; 4 *as on trees.*

Crust rough, mealy, thin, hardish, closely adhering, dirty, obscure grey. *Tubercles* lentil-shaped, convex, black, not bordered with a different colour. JACQ. *Tubercles* rough, black throughout.

On rocks and stones. [On trees at Enville, Staffordshire, On the stone coping of a wall at Edgbaston.]
P. Jan.---Dec. RELHAN. July.

Var. 2. Tubercles black: crust none, SCOP. p. 364. WEBER, p. 191. HAGEN. p. 49.

On soking it in water some very fine branny flakes separated from the indurated clay on which it grew.

[On a mud wall. Specimen from Major VELLEY.---On rocks in the north. Dr. ALEXANDER.]

L. Tubercles black, with an indistinct black border; partly imbedded in the crust: crust rusty red, rough, cracked. Œde'ri.

Hoff. lich. 19. 2.-*E. bot.* 1118.

Crust half a line thick, tessellated, or cracking into small partitions when dry, colour of rusty iron. *Tubercles* numerous, sometimes crowded, blue, black, encompassed with a narrow margin, shining when wet, flat, but convex and perforated at the top when old. HOFFMANN. (Shields three or four times as large as those of L. Dicksoni (p. 19) sessile, not immersed. *E. bot.* E.)

(*Yellow Ochrey Lichen.*-- *L. Oederi* of WEBER, and WITH. ed. 4. not the real *L. Oederi* of Fl. dan. which is the *L. cæsius* of DICKSON--and L. *Dicksoni* of WITH. ed. 4. E.) Rocks and stones in Scotland. [King's Park, Edinburgh. Mr. BROWN.]

quer′neus. L. Tubercles black, not bordered; partly sunk in the crust: crust yellowish, with a tinge of brown.

E. bot. 485--*Dick.* 2, 3.

Crust growing irregularly to the bark of trees, composed of granules of a pale yellow. *Tubercles* convex, unequal, which from the rising of the crust sometimes seem as if immersed. Very much resembling a Byssus, but its fructification proves it to be a Lichen. DICKS. *Crust* following the sinuosities of the bark, without any defined margin, composed of miscroscopic granules of a dirty cream colour. *Tubercles* rather rare, minute, seldom so large as the smallest pin's head; blackish, irregularly dispersed. Mr. WOODWARD.

On the trunks of oaks. [Frequently in patches of considerable extent, seldom more than 3 or 4 feet from the ground. Mr. WOODWARD. Garn Dingle, Mr. GRIFFITH.] P. Jan.---Dec.

geogra′phicus. L. Tubercles black, not bordered, crust yellowish, with black lines and dots resembling a map.

E. bot. 245--*Hoffm. lich.* 54. 2--*enum.* 3. 1--*Dill.* 18. 5--*Fl. dan.* 472. 3.

Crust orange-coloured, brittle, marked with black. *Tubercles* or prominent lines of the same colour. Grows on granite and other compound stones, and is one of the few British vegetables that can bear the keen air of Skiddaw's top. Mr. GOUGH. *Crust* very thin, irregular in shape, yellow, hardly separable from the stones on which it grows, marked with distinct, rising, black lines dividing into compartments. *Tubercles* black, small, but varying in size, not bordered. DILL.

Rocks in the north of England; Steiperstone, and Pentir in Scotland. In the north of England in vast patches sometimes spreading on a smooth rock 3 or 4 feet square. Mr. WOODWARD.] P. Jan.---Dec.

sulphu′reus. L. Tubercles brown black, very small, irregular; crust brimstone colour, cracked, uneven.

Hoffm. enum. 4. 1; *and lich.* 11. 3. —*E. bot.* 1186.

Crust like tartar, unequal, thickish, raised, cracked and tessellated, pale sulphur colour, white at the edge when broken, *Tubercles* at first numerous cloudy spots, at length rising out of the crust, not readily distinguishable from it but by the blackish or dirty reddish colour. HOFFMAN. *Crust* and *tubercles* soft and almost gelatinous. Sometimes on wood, or bricks.

(*Sulphureus Lichen.* When growing on wood Dr. Smith observes that the *crust* is thinner and more inclined to be mealy, and the *shields* paler, of a yellowish waxy brown. *E. bot.* E.) Rocks in Scotland. [Covers the walls and tiles of Catlidge House, near Newmarket. RELHAN.]

L. Tubercles black, rough; crust green yellow, mealy, DICKS. iii. flavo-vires′-cens.

Dicks. 8. 9.

Crust scarcely cohering, composed of farinaceous globules of a fine yellow with a greenish cast. *Tubercles* few, thinly scattered, of a middling size. DICKS. fasc. iii. 13. Not *L. flavo-virescens* of GMEL. *syst. veg.*

On Sandy soil.

Var 2. Tubercles black, very minute; crust fine yellow green, granulated.

Specimens from the top of Garnedd Llewellin by Mr. GRIFFITH. The tubercles are smaller than in Mr. Dickson's plant, the granulations of the crust much larger, but equally soft and farinaceous. The colour of the crust varies from green to yellow green.

L. Tubercles black: crust fine green: border black. atro-vi′rens.

Hoffm. lich. 17. 4–*Jacq. coll.* ii. 14. 2.

Tubercles small, of a yellow-greenish colour, crowded, so that the whole surface appears of a yellowish green, bordered by a black margin. LINN. *Crust* hardly discernible on a slight inspection, inseparable, blackish, set with innumerable minute yellowish dots. When magnified a blackish wart is found attached to each of the yellow particles, and other warts scattered on the crust. The smallness of the granulations and the absence of distinct lines distinguishes it from the *L. Geographicus.* HOFFMAN. *Crust* very thin, truly mealy black. *Tubercles* sitting lentil-shaped, very small, yellowish watery green, smooth, without any rising or different coloured border. JACQ. coll. ii. 186.

On rocks, Yorkshire. P. Jan.---Dec.

L. Tubercles brown, border whitish; crust white. rupi′cola.

Hoffm. enum. 6. 3.--*Hoffm. lich.* 22. 1 *to* 4.

Crust very thin. *Tubercles* sometimes somewhat convex, greenish, giving to the plant a different appearance. LINN. *Crust* if any, very thin, white or greyish. *Tubercles* numerous, some with a thick border and a small cavity in the middle, others nearly flat, irregular and angular, from their compressing one another; livid in the centre, others again raised, surrounded spirally twice or thrice with a white or grey border, and hardly any central part. HOFFMAN. *Tubercles* the same pale brown colour within and without. *Crust* not remarkably thin; thicker than the shell of an egg; much cracked. In a more advanced state approaching to decay, the tubercles become darker on the surface, the crust loosens, swells into large granulations and sometimes changes to green. Our plant does not well accord with the descriptions of Linnæus nor of Hoffman.

On limestone rocks. [About Garthmeilio, abundantly. Mr. GRIFFITH; on Whinstone, and on the summit of Rowley hill.]

compo'situs L. Tubercles black brown, imbedded; nearly flat, compound, very irregular in shape; not bordered: crust white, tessellated.

E. bot. 2156-PLATE XXXI. f. 2.

Tubercles white within; flatted at the top, not bordered otherwise than by the cracking of the crust; from 3 to 10 or more, often crowded together so as to form 1 large irregular mass. *Crust* near 1-10th of an inch in thickness.

(Specimen from Mr. GRIFFITH of Garn. On Granite.)

fungifor'mis. L. Tubercles brown, flat, on pedicles; crust grey green.

Dill. 14. 4.

Crust very thin, wrinkled. DILL.

On rocks near Bishop's Castle, Shropsh. Littl. Brown.

ru'fus. L. Tubercles brown, flattish; mostly on fruit-stalks: crust greenish.

Jacq. coll. iv. 7. 3--*Hoffm. enum.* 8. 4--*Dill.* 14. 2.

No proper crust for its base, but numerous, small, whitish leafits, from whence arise grey green pedicles, supporting largish pale brown tubercles. DILL.

Heaths and ditch banks. Hampstead Heath. DILL.

A. Oct.---March.

ericeto'rum L. Tubercles flesh-coloured, convex, on pedicles: crust whitish.

E. bot. 374--*Fl. dan.* 1003. 2--*Hoffm. enum.* 8. 3--*Dill.* 14. 1--*Mich.* 59 *ord.* 35.

Tubercles convex, on foot-stalks, resembling minute Agarics. LINN. Sitting, and on foot-stalks. HUDS. *Crust* granulated, rough, spread wide, grey green, in moist, white in dry situations and seasons. DILL.

Turfy heaths, sides of peat bogs, gravel pits, and on banks.
P. Jan.---Dec.

L. Tubercles tawny red; scattered, smooth, shining: crust whitish, with fine black perforations. cal'vus.

E. bot. 948--*Dicks.* 6. 4.

Crust thinnish, extended, smoothish, dotted with numerous fine pores of different sizes. *Tubercles* conspicuous, rather loosely scattered, of the size of mustard seeds. DICKS. (*Crust* hard, and inseparable from the stone, abounding with little round depressions, left by the tubercles when they fall off. *Tubercles* quite sessile, of a full orange colour, destitute of any border. *E. bot.* E.)

Bald Lichen--Rocks in mountainous parts of Scotland and Wales.

L. Tubercles rust-coloured, roundish: crust grey white. verna'lis.

Hoffm. lich. 35. 1; *and enum.* 5. 1--*E. bot.* 845--*Dill.* 18. 4, *and the central part of* 55. 8.

Ground ash-coloured white. *Tubercles* nearly globular, jelly-like, crowded, sitting, without a cup-like brim. LINN. *Crust* very thin, grey white. *Tubercles* of various sizes, not bordered. DILL.

L. ferrugineus. HUDS. *L. ferrugineus.* GMELIN. Bark of trees, old pales, and sometimes walls and rocks. P. Jan.--Dec.

Var. 2. Tubercles more numerous, of a browner colour and softer consistence. LIGHT. Tubercles often clustered together, several smaller ones forming a larger one. Mr. Woodward supposes this distinct.

On stones. Mr. GRIFFITH.

L. Tubercles flesh-coloured, sitting, flat, angular: crust greyish. icmado'phila.

E. bot. 372--*Hoffm. enum.* 8. 1--*Fl. dan.* 472. 4--*Jacq. Austr.* 275.

Crust thinner, more compact, with smaller granulations. *Tubercles* perfectly sitting and in some measure immersed in the crust. Mr. WOODWARD.

L. elveloides. WEBER 186. Mr. WOODWARD.

L. Tubercles flesh-coloured, globular: crust greenish ash-coloured. sphæroi'des

Dicks. 2. 2.

Crust between mealy and wrinkled, greenish, with a tinge of sea-green. *Tubercles* small, spheroidal, dirty yellow or brown, heaped up into little clusters. DICKS.

Heaths and woods. [Garn Dingle. Mr. GRIFFITH.] June.

flavo-rubes'cens. L. Tubercles orange red: crust greenish ash colour.

Fl. dan. 955. 1.

Crust sometimes yellow when moistened.

L. aurantiacus. LIGHTF. 810. Trunks of trees, rocks and stones. P. Jan.—Dec.

pertu'sus. L. Tubercles grey green, smooth, set chequer-wise, and pierced with 1 or 2 cylindrical holes: crust pale brown.

Dill. 18. 9--*E. bot.* 677--*Jacq. coll.* ii. 13. 3--*Fl. dan.* 766--*Bolt.* 126--*Hoffm. enum.* 3. 3--*Weig.* 2. 15--*Mich.* 52. *ord.* 32. *and* 56. 1. 2. *Lichenoides: in its earliest stage.* 1.--*Hag.* 1. 3.

Ground leprous, white, thin, but where it produces fructifications thick, cloven into angular warts. LINN. *Crust* thin. *Tubercles* innumerable, unequal, wrinkled, but smooth to the touch, grey green, hollow within, opening at the top with one or more apertures, corresponding with the number of cavities in the substance. DILL.

L. verrucosus. HUDS. *ed.* i. 445. Bark of trees, rocks, and walls. P. Jan.—Dec.

vento'sus. L. Tubercles red (with a narrow pale border, E.); crust yellowish, ragged.

Dicks. h. s.--*Weber.* 1--*Hoffm. lich.* ii. 27. 1.-*E. bot.* 906.

Tubercles large and irregularly shaped, at first very convex; through age flatter, and with a whitish margin from being surrounded by the crust, at length putting on the appearance of margined targets. The line between *tubercled* and *saucer-like Lichens* remains yet to be drawn; or rather it is more probable that future observations will entirely remove the artificial one at present formed. Mr. WOODWARD. (The old shields turn black in decay, and often bear young ones. *E. bot.* E.) *Tubercles* bordered by the crust; varying in colour from liver colour to pale pink. *Crust* granulated, generally cracked, deeper or paler yellow, changing to grey or brown white.

In its whiter state the *L. gelidus*, HUDS. 528. Dr. J.E. SMITH.

Red-spangled Tartareous Lichen. On rocks. Pentir rocks in Wales. DILL. And in the north of England, Yorkshire, and both the Lowlands and Highlands. [Above Bowness on the banks of Winandermere, and on Casterton Fell near Kirkby Lonsdale. Dr. J. E. SMITH. Upon rocks on the sides and tops of hills in Dartmoor, Devonshire. Mr. NEWBERRY.]

P. Jan.—Dec.

L. Tubercles very red, sunk in the crust: crust greenish brimstone colour; mealy. coccin'eus.

Dicks. h. s--*Hoffm. lich.* 11. 1--*E. bot.* 223--*Dicks.* 2. 1.

Differs from *L. ventosus* in the crust being mealy, not warty, hard and smooth, and in the tubercles being immersed; of a very bright red with mealy edges. DICKS. The greenish brimstone colour of the crust is not permanent.

On the stones of Stone Henge, Wiltshire. [On sandstone in Roslin wood. Mr. BROWN.]

B. (3) *Crustaceous, with* SAUCERS.

L. Saucers white, very minute: crust forming cylindrical level-topped bundles; the extreme edge rather leaf-like. coral'linus.

Hoffm. enum. 4. 2--*Jacq. coll.* ii. 13. 2.—*E. bot.* 1541.

Similar to *L. calcareus.* Crust very thick, and when broken appearing composed of *threads* resembling coral; the ends rounded, without tubercles. LINN. *Crust* thick, white, broad spreading on the rocks, appearing as if composed of small branches, and when broken the branches appear distinctly, their tops forming the surface of the crust. *Tubercles* only on the old specimens, hardly visible to the naked eye, a little hollowed. Besides these tubercles there are minute convex black dots on the crust. WEBER. *Crust* a line in thickness, snow white, greyish with age, bearing on its surface little pillars like coraline, $\frac{1}{2}$ a line high, convex at the ends. JACQ. coll. ii. 180.

White coral-crusted Lichen. Rocks, stony places, and mountainous heaths in Wales, the north of England, and in Scotland.

P. Jan.—Dec.

L. Saucers white, mealy, with yellowish white, thick, blunt borders: crust yellow white. Perel'lus.

Dicks. h. s.--*Hoffm. enum.* 6. 2--*Dill.* 18. 10--*Hoffm. lich.* i. 12. 5--*E. bot.* 727--*Pet. musc. f.* 79.

Crust thick, warty, white in its fracture, reddish when wet and rubbed to powder. *Saucers* numerous, whiter than the warts, globular but depressed in the centre, larger and flatter with age. Hoffman. *Crust* wrinkled, granulated, stony to appearance, not gritty, when chewed, but rather tough; yellowish when cut. *Saucers* like crab's eyes, whitish. Dill.

Rocks, walls, stones, trunks of trees. [Malvern Hills, Worcestershire. St. On the smooth bark of a beech in Hertfordshire. Mr. Woodward. Saltash Ferry near Plymouth, on slate, in great quantity.) P. Jan.—Dec.*

crenula'tus. L. Saucers grey; border whitish, broad, scolloped: crust black, rough.

Dicks. 9. 1.- *E. bot.* 930.

Crust thin, wrinkled, black; *Saucers* numerous, scattered, small: border very broad.

" *L. dispersus* of Dr. Acharius. E. bot." *Little crenate Lichen.* E. On rocks in Yorkshire. Dicks. iii. 14. (Egleston, Durham. Rev. Mr. Harriman. E.)

can'dicans. L. Saucers brown black, with a white border; rather convex: crust white, shining, somewhat lobed.

E. bot. 1778.-*Dicks.* 9. 5.

Crust roundish, closely fixed down, even, white, rather shining, the edge lobed and somewhat leaf-like. *Saucers* numerous, near together, brown black, convex when fully grown.

(*Whitish radiating Lichen. L. epigeus.* Achar. Prod. E.) On rocks in Yorkshire. Dicks. iii. 15.

va'rians. L. Saucers black, shining, border white: crust white.

Hoffm. lich. 52. 1. 3, & 53. 4. 6-*Linn. tr.* ii. 28. 3.

When in perfection the crust is of a fine polished white, and the fructification a bright shining black, with a white margin. In time it loses the glossy black, then becomes paler, and in decay assumes an ochrous buff colour.

Found on the S. W. side of Anglesea by the Rev. Hugh Davies.

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* Litmus is prepared from this species. For this purpose it is gathered from the rocks in the north of England, and sent to London in casks.

L. Saucers black, border white, scolloped: crust whitish, wrinkled. a'ter.

E. bot. 949.—*Dill.* 18. 15. *A; and* 55. 8, *the parts next the foreedge of the stone on which the Bryum grows.*-*Hoff. enum.* 4. 4.

Saucers sometimes very entire. Huds. *Crust*, when on trees, thin, ash-coloured, hardly separable from the bark; on stones, whiter, thicker, more wrinkled and more stony. *Shields* black, at first small, without a border, as they grow larger, are nearly flat, and have a thin white border. Dill. (Dr. Smith observes that in some instances the margin of the shields is tinged with lead-colour, in which state he imagines it to constitute our L. *cinerascens.* E.)

Black-shielded Lichen. L. melanostictos. Gmel. syst. veg. Common on walls, rocks, and barks of trees. P. Jan.--Dec.

Var. 2. Crust thicker and whiter: saucers, borders wrinkled and bent in. Lightf.

On walls.

Var. 3. Saucers very much crowded, border and crust brown grey.

On the highest rock of Rowley hills, Staffordshire.

L. Saucers black, crowded: border white: crust ash-coloured, somewhat tiled at the edge. sub-imbrica'tus.

Hoffm. lich. 59. 1, *&* 60. 3.—*E. bot.* 1941-*Relh. at p.* 427.

Crust circular, thick, somewhat tiled at the edge, 1 to 4 inches in diameter. *Saucers* very numerous. Relh. Has a tendency like the *centrifugus* to lose its central part, which falling off with the old saucers, leaves only the somewhat tiled leaves. Woodw.

(*L. circinatus.* Achar. prod. E. bot. E.) Stones and walls. P. Jan.—Dec.

L. Saucers black, confluent, placed in concentric circles, imbedded in the crust: crust greyish white. concen'tricus.

Hoffm. lich. 50. 1. 2-*E. bot.* 246-*Jacq. coll.* iii. 6. 2. *a.a.a.*

Saucers generally with a white border, somewhat raised above the crust.

Found by the Rev. Hugh Davies on Whinstone rocks in the parish of Whitford, Flintshire. See E. bot. and Trans. Linn. soc. ii. p. 284. [On a wall between Bettws mountain and

Garthewin, the seat of Robert Wynne, Esq. Denbighshire. Mr. GRIFFITH; on Schistus.]

puncta'tus. L. Saucers black, very numerous, small, roundish: crust grey, cracked.

E. bot. 450—*Fl. dan.* 468. 2.

On rocks in Scotland. DICKS. iii. 15.

scrupo'sus. L. Saucers black, sunk in the crust; scolloped at the edge: crust ash-coloured, granulated.

Hoffm. lich. 11. 2-*E. bot.* 266—*Jacq. coll.* ii. 13. 3—*Hall. enum.* 2. 6, *at p.* 91—*hist.* 47. 6, *at* iii. *p.* 88—*Dill.* 18. 15. *B.-Hoffm.* 6. 1-*Mich.* 52. *ord.* 33.

Crust when moist greenish ash-coloured, when dry greyish. Mr. WOODW. Crusty, thick, cracked, warty, grey; whitish when thinner, brittle when dry. *Saucers* sunk in the crust, hollow, lead coloured. HOFFM.

L. pertusus. JACQ. coll, on the authority of Dr. Smith. *L. excavatus.* RELH. p. 420. Walls and dry heaths, Gogmagog Hill, Newmarket Heath. [On walls, frequent, Norfolk and Suffolk. Mr. WOODWARD.] P. Jan.---Dec.

Var. 2. Crust widely expanded, thicker. RELH.

On walls. [On the ground on the banks of Leith Water, Edinburgh. Mr. BROWN.]

frustulo'sus L. Saucers brown black: crust black and white variegated. DICKS.

Dicks. 8. 10.

Crust composed of 2 layers, the under one wrinkled, black, spreading widest; the upper white, even, occupying the central part, cracked into irregular pieces. *Saucers* numerous, on the pieces of white crust; very pale brown and flat when young and bordered with white; when older darker coloured and swollen into tubercles; when old black and rather confluent. DICKS. iii. 13.

Rocks in Scotland, and in Yorkshire.

atrocin'ereus L. Saucers black, much crowded, flat, border grey: crust black.

Dicks. 9. 2.

Crust rather thick, black, *Saucers* elevated, in clusters, when young encompassed by a remarkable grey border, when old, resembling tubercles, and without a border.

On stones. Dicks. iii. 14.

L. Saucers black, bordered by the crust and sunk into it: crust warty, brown. gibbo'sus.

Dicks. 6. 5.

Crust thickish, unequal, hunched, with warts. *Saucers* shining, as if clammy, the border thick, and in reality nothing more than a projection of the crust. Dicks.

On alpine rocks. On the summit of Ben Lawers.

L. Saucers blue-black, raised, bluntly bordered: crust rusty ochre colour. Dickso'ni.

Dicks. 6. 6.—*E. bot.* 1117.

Crust equal, between wrinkled and tubercled, cracked. *Saucers* small, numerous, scattered, black, covered with a sea green bluish bloom, the bottom depressed, the margin convex and thick. Dicks. (In some young specimens we have perceived a lobed appearance towards the edge. *E. bot.* E.)

L. Œderi. E. bot. *L. cæsius.* Dicks. fasc. ii. and Bot. arr. ed. ii. On slate rocks in the mountains of Scotland. (On slate in North Wales. E.)

L. Saucers blue-black, rather convex, of various shapes: crust, rust-coloured, very thin. pruina'tus.

E. bot. 2244—*Dicks.* 9. 4.

Crust red rust-colour, extremely thin. *Saucers* generally scattered, sometimes in clusters, rather large, flat, or a little convex, somewhat cracked, very black within but as if covered with a blue glaucous moisture; border of the same colour, or blackish.

(*Frosty-shielded Lichen. L. pruinosus.* E. bot. E.) Stones on the Scotch mountains. Dicks. iii. 15.

L. Saucers brown, pale, semi-transparent: border the same: crust white, farinaceous. cor'neus.

Plate XXXI. f. 3.—*E. bot.* 965.

Saucers small, scattered, in look and texture like brown horn. Differs from the *L. sub-fuscus* and from *L. pallidus* in having a smooth and even border of the same colour and texture as the saucers.

Horney-cupped Lichen. Found by Mr. GRIFFITH upon oaks in the dingle at Garn near Denbigh. (On oaks in Studley Wood, near Rippon, Mr. W. BRUNTON; and from Eggleston, Durham, by Rev. Mr. HARRIMAN. E. bot. E.)

al'lidus. L. Saucers brown, rough, flat, elevated: the border waved, white: crust whitish, hoary.

Dicks. h. s.—Hoffm. enum. 5. 2—*Hoffm. lich.* 17. 2.

Crust unequal in thickness; very white, greyish with age. *Saucers* when young, whitish grains, with a very small aperture; when open, pale flesh or reddish colour. HOFFMAN.

On the clefts of the bark of trees, and on dry wood.

sub-fus'cus L. Saucers tawny, brown, with ash-coloured borders, somewhat scolloped: crust whitish. LINN.

E. bot. 2109.—*Dill.* 18. 16. *A. A. in two compartments of fig.* 3 *and* 4 *of the upper row.—Hoffm. enum.* 5. 3, *the compartments numbered* 3, 3, 3, 3—*Dill.* 18. 16. *B, the borders scolloped.*

Brown-shielded crustaceous Lichen. On the bark of trees, and walls. P. Jan.—Dec.

lacus'tris. L. Saucers reddish brown, sunk in the crust: crust pale yellow brown; thin, wide-spreading, much cracked.

E. bot. 1087.—PLATE XXXI. f. 4.

This non-descript Lichen was sent to me by J. WYNNE GRIFFITH, Esq. of Garn near Denbigh, who first found it on the shore of Llyn Aled Lake, growing on stones of granite, which are covered with water in the winter. (It has since been found about the bed of the Tees, having in its most common state, as Dr. Smith observes, the appearance of an ochraceous deposit of the water. *L. Acharii.* E. bot. E.)

palles'cens. L. Saucers pale brown, very much crowded: crust brown white.

Hoffm. enum. 10. 2. 1—*Jacq. coll.* iii. 5. *f.* 3. *a. a.*

Can scarcely be said to have any *crust*, being usually nothing more than a congeries of *aucers*, frequently so crowded as to form a convex surface, the inner ones being pressed upwards by the outer. Mr. WOODWARD.

Rocks, walls, and trunks of trees. P. Jan.—Dec.

L. Saucers yellow brown, border glaucous, serrated: crust glaucous, fugacious. pezizoi′des.

Dicks. 2. 4—*Hoffm. enum.* 7. 6.

Crust sea-green, blackish when old, not always to be found. *Saucers* yellow when young, brownish afterwards, at length quite brown; shining, flattish but sometimes convex, border raised, scolloped, sea-green. WEBER. Nearly allied to the L. tenuissimus. Mr. GRIFFITH.

(*Brown Earth Lichen. L. brunneus.* ACHAR. Prod.—E. bot. E.) Sandy banks. (Crib y Ddescil, and Clogwyn y Garnedd, North Wales. Mr. GRIFFITH. Marine rocks near Bangor. Mr. TURNER. E.)

L. Saucers red brown, scolloped: crust greenish, composed of roundish scales, Hypno′rum.

E. bot. 740—*Fl. dan.* 956—*Hoffm. lich.* 30. 3.

Barren heaths, on moss, and on the ground. DICKS. iii. 14.

[Foot of Pentland hills. On mud walls near Dundee, and Taymouth. Mr. BROWN.] Aug.

L. Saucers tile-coloured, flat, border white; crust white, shrub-like; branches very short, crowded. fri′gidus.

E. bot. 1879—*Linn. fil. musc.* 2. 4.

The crust forms upon bits of grass, moss, &c. whence it gains something of a shrub-like appearance. In its oldest state it changes to a true shrub-like Lichen. Mr. BROWN.

Thin Tartareous Lichen. Common on the tops of all the Highland mountains. [On the Pentland hills, and on the Links of Aberdeen. Mr. BROWN.]

L. Saucers pale brick colour, nearly flat: border pale, brown: crust pale greenish brown, with black dots. cupula′ris.

Hedw. stirp. ii. 20. B.

On trees. On slate rocks in Scotland.

L. Saucers red rust-coloured, border the same, very finely scolloped; crust grey. crenula′rius.

PLATE XXXI. f. 5.—*Hoffm. lich.* 12. 1.—*E. bot.* 1650.

Saucers varying in size and in shape, the border, especially in the larger ones, finely plaited. *Crust* roughish.

(*Rusty-shielded Lichen. L. ferrugineus.* E. bot. E.) On rocks and trees. [Rocks near Llanufydd, Denbighshire. Mr. Griffith. On flints on the highest parts of the Isle of Wight.]

exanthema'ticus. L. Saucers flesh-coloured, very minute, sunk in the white dots of the crust; crust ash-coloured, sprinkled with white dots.

Linn. tr. i. 4. 1.—*E. bot.* 1184.

Crust very thin, scarcely palpable: grey, sprinkled with white dots consisting of small cavities closed by a white wrinkled substance, which opening in the centre discover the saucer. These dots separate when old, and leave a cavity in the stone. Dr. Smith. Linn. tr. i. p. 81.

Eruptive Lichen.-On calcareous rocks in Scotland. Dickson. iii. 14. (On limestone rocks between Gardale and Malham Tarn, Yorksh. Hailstone in Whitaker's Craven. On the banks of the Tees, Durham, Rev. Mr. Harriman. E.)

marmo'reus L. Saucers flesh-coloured within, concave: border whitish and hairy: crust pale greyish brown.

Hoffm. enum. 6. 4.

On the bark of trees, and on the bare ground covered with decayed moss, in Yorkshire, Derbyshire, and Scotland.

tri'color. L. Saucers orange-coloured, border pale brown: crust dull green.

Plate XXXI. f. 6.

Saucers very minute, deeply hollowed, like the cup of a Peziza.

On half decayed oak bark, Mr. Griffith, who first discovered it, and favoured me with specimens. He has lately met with it on calcareous sand stone, the saucers considerably raised above the crust. Garreg-wen rocks, near Garn. Also on the bark of birch trees, and then the saucers are whiter.

When it grows old the saucers become black, and their opposite edges turn inwards, so that the whole assumes an oblong figure with a groove extending its whole length. In this state it is the *Sphœria sulcata* of Bolton, the *Lichen pulicaris* of Hoffman, the *Lichen scriptus β. pulicaris* of Lightfoot.

Lichen marmoreus. E. bot. 739--*Bolt.* 124--*Mich.* 54. *ord.* 37. 2--*Hoffm. enum.* 3. 2. *e.*

About the size of a flea, with a deep furrow extending from end to end. Bolt.

On decayed branches of ash trees. BOLT. In Norfolk and Suffolk. Mr. WOODWARD; but we are indebted to the accurate researches of Mr. GRIFFITH, for the discovery of its curious transformation. This singular plant possesses the crust of a Lichen, the cup of a Peziza, and the capsule of a Sphæria.

L. Saucers yellow, with a white border: crust whitish. tarta'reus.
E. bot. 156--*Dill.* 18. 13--*Jacq. coll.* iv. 8. 2.

Substance tough, not gritty; acrid. *Crust* thickish, wide spreading, greatly wrinkled, reticulated underneath, growing on other decayed mosses. *Saucers* large, deeply concave, borders sometimes scolloped. DILL. It assumes various appearances. Sometimes has a thinner and more uniform crust than usual, thickly covered with white tubercle-like excrescences, and free from shields except in the centre, where they are so thickly crowded as to be confluent. Sometimes it grows on moss, the branches of which are surrounded with it exactly like the incrustations formed by springs abounding in a calcareous earth running over a bed of moss. Mr. WOODWARD. *Crust* sometimes with a greenish cast.

Rocks and large stones. North of England, Devonshire and Wales. Bingley, Yorkshire, Caernarvon, Highlands and Lowlands. [Stierperstone, Shropshire. DILL. Malvern Hills. Mr. BALLARD. On schistus in Wales. Mr. GRIFFITH.]
P. Jan.—Dec.*

L. Saucers dirty yellow, flat, imperfectly bordered: crust whitish, granulated. fusco-lu'teus.

Dicks. h. s. and fasc. 6. 2--*E. bot.* 1007.

Crust cohering, covering mosses and other dead plants on which it grows, so that it has the appearance of having leaves and branches. *Saucers* of middling size, covered with a yellow meal, which being rubbed off they appear black, whence their general dirty hue. *Border* visible by means of a magnifying glass. DICKS. Unless in fruit it cannot be distinguished from L. frigidus. Mr. BROWN.

Brownish-yellow Lichen. On Ben Lawers and other mountains of Scotland. [On Craig Cailleach at great heights, and always on the ground amongst moss and grass. Mr. BROWN.]
Aug.

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* It is common in Derbyshire on limestone, and incrusts most of the tones at Urswic Mere. It is gathered for the dyers by peasants who sell t for a penny a pound. They can collect 20 or 30 pounds a day. It gives purple colour.

ceri′nus. L. Saucers pale yellow, smooth; border and under side whitish; crust grey white.

Hedw. stirp. ii. 21. B.

The saucers frequently swell out so much in the middle as to assume the form of tubercles, covering the whole surface of the crust. They change to dirty brown yellow when dry, but when macerated regain their former colour, like that of bees wax.

On the bark of trees. DICKS. iii. 14. [On elm and ash, frequent. Mr. GRIFFITH.]

quadri′-color. L. Saucers brown yellow, changing to black; flat: crust powdery, grey white.

Dicks. 9. 3. —*E. bot.* 1185.

Crust powdery, thin, greyish, covered with white, mealy, globular particles. *Saucers* numerous, yellowish and rather concave (and gelatinous, E. bot. E.) when young with a white border; black and convex when older.

Four-coloured Lichen. Mountains in Scotland, on the ground. DICKS. iii. 15. (Since observed by Mr. TURNER at Lound, near Yarmouth, and by the Rev. Mr. HARRIMAN, at Eggleston, Durham. *E. bot.* E.)

Upsalien′-sis. L. Saucers cream colour: border white; crust white, composed of awl-shaped masses; scored, brittle.

Dicks. 2. 7—*Hoffm. enum.* 7. 1—*Hoffm. lich.* 21. 2.—*E. bot.* 1634.

The size of *L. saxatilis*, ash-coloured, white, composed of bristles; *bristles* straight, white, shrivelling, prostrate, unequal, confused, very simple, as long as the nail, very brittle, frequently several united at the base. *Saucers* white, with a blunt border, rather large; from the root, not placed on the bristles. LINN. *Crust* of a milky whiteness, very brittle, investing slender leaves of grass or moss. *Saucers* globular, dimpled, crowded, cream coloured. HOFFMAN.

Heaths near Norwich.

Bys′sinus. L. Saucers yellow, with a white border; flat, very small: crust powdery, blackish.

Hoffm. enum. 4. 7—*E. bot.* 432.

Trees and stones, Scotland.

L. Saucers brownish yellow; crust yellow with a greenish cast. fla′vicans.

E. bot. 2157—*Dill.* 18. 18. A. C.

Habit that of L. *candelarius*, but the *crust* circular, wrinkled, greenish; and the *saucers* of a brownish yellow hue, or earthy yellow; convex. HUDS. *Crust* rather inclined to assume a leaf-like appearance at the edge.

(*Yellow wall Lichen.* *L. murorum.* ACHAR. prod. *E. bot.* E.)

L. *flavescens.* Huds. and Bot. arr. See L. *candelarius.* Bark of trees, walls, rocks, and stones. P. Jan.—Dec.

L. Saucers yellow, with a yellow border: crust grey green. lu′teus.

Dicks. 2. 6.—*E. bot.* 1263.

Crust a hoary meal, often scarcely discernible, finely sprinkled over a stratum of moss, or merely tinging it of a whitish hue. *Saucers* deep yellow, numerous, of a middling size, flat, sometimes 2 or 3 together, the rest scattered. DICKS.

(*Crust* mealy. *E. bot.* E.)

(*Yellow-shielded Crustaceous Lichen.* Trunks of trees. In a wood near Bangor. Mr. TURNER. E.)

L. Saucers sea-green, with a white border; crust whitish, cracked into roundish angular pieces. rimo′sus.

E. bot. 1736—*Fl. dan.* 468. 3.

Cracked Chalky Lichen. Rocks and stones in Yorkshire. DICKS. 12.

B. (4) *Crustaceous with both* TUBERCLES *and* SAUCERS.

L. Saucers blackish, border and outer side whitish: tubercles blue black: foliage grey white, leaves slightly many-cleft. Pso′ra.

Hoffm. lich. 8. 1: *and enum.* 12. 1.—*E. bot.* 1052.

Crust in circular patches; 1 or 2 inches over. *Fructifications* numerous, in the centre. HOFFM.

(*Grey-warted Lichen.* *L. cæsius.* ACHAR.—E. bot. E.) Stones, roots, and on moss. (Gathered by Mr. TURNER on the gravestones, &c. in the church-yard of Burgh, Suffolk, and Acle, Norfolk; and by Mr. SOWERBY on the slates of Richmond House, Richmond Park. E. bot. E.)

L. Tubercles tile-coloured, in the centre: saucers concave, the same colour, in the circumference; border brown white; crust brown white. ge′lidus.

Dicks. h. s.—E. bot. 699—*Fl. dan.* 470. 2.

Crust leafy, circular, so closely growing to the rocks as not to be separated from them; whitish, longitudinally wrinkled. *Tubercles* occupying the centre of the crust, reddish tile-coloured, convex, considerably elevated, with ray-like plaits, without any border. Linn. The redness of the saucers disappears when the plant is dry. Dicks. It forms a circular crust about the size of a shilling, so thin as hardly to bear separation from the rocks. The fructification generally consists of one solitary tubercle, near the centre of the plant, considerably elevated above the crust. Have only twice found it with saucers. Mr. Griffith.

L. heclæ. Œder fl. dan. viii. 8, as Œder very rightly conjectured. As Linnæus had not observed any saucers, he only mentioned a tubercle in the centre. L. *gelidus.* Huds. 528, is a very different plant. Dicks.—See L. *ventosus.*

Rocks in the Highland mountains, and on large stones, generally near water. Mr. Brown. [Between Llanberris and Pen y Gorphwysfa; also at Gallt y ddôl garn, between Pencraig and Cappel cerrig. On stones in Cwm Idwell, Caenarvonshire, particularly near Twll du. Mr. Griffith.]

decip′iens. L. Saucers tile-colour, tubercles black, both with white, stellated borders; foliage brownish, shining, lobed, tiled, tawny; white underneath and at the edge.

Hoffm. lich. 43. 1.3—*E. bot.* 870—*Hedw. stirp.* ii. 1. B—*Jacq. coll.* iii. 3. 3.

Very beautiful. *Saucers* the edges silvery white. Relhan. *Saucers* very numerous, bright brownish colour, the margins scolloped, white, shining, the younger flat, the older irregular and deformed, in age black. Mr. Woodward. Flat, expanded, rather thick; roundish when young, oblong when old, rather concave, smooth, brick colour, paler when dry. Hedwig.

Stellated Ground Lichen. L. stellatus. Relh. 430. On the ground on heaths, dry pastures, and barren places. Gogmagog Hills, Newmarket Heath, in Surry and Scotland.

P. Jan.—Dec.

lenti′gerus. L. Saucers tawny, crowded, border white; when old changing to tubercles, and becoming more yellow: crust whitish, leaf-like, lobed, scolloped, and tiled at the edge.

Fl. dan. 1185. 2—*E. bot.* 871.—*Relh. at p.* 430—*Weber* 3—*Hoffm.* 9. 4.

Crust pure white, shining, divided into lobes so as to appear of the leafy kind, expanding into flat circular turfs. *Saucers* small, concave, at first of the same colour with the crust. Linn. *the Son, from Weber.—Crust* leafy. *Saucers*, at length becoming convex tubercles. Weber. 192.--*Saucers* the younger very small. Relh. *Leaves* cream-coloured, closely tiled. *Saucers* tawny. Mr. Woodward.

White ground Lichen. Heaths and dry pastures. Gogmagog Hills, Newmarket, and a heath near Newmarket. [Sometimes on stone walls.] P. Jan.—Dec.

L. Saucers orange yellow when young: crust yellow, powdery: when old, tubercles yellow; crust yellow, somewhat leafy at the edge. candela′rius.

Hoffm. lich. 17. 3. *and enum.* 9. 3.—*Jacq. coll.* iii. 6. 1.—*E. bot.* 1792—*Dill.* 18. 18. B.

Crust spreading wide, often to a hand's breath, moderately thick, yellow. *Leaves* wrinkled, cloven, firmly fixed, lobes blunt, pulpy, with age uniting and becoming powdery. *Saucers* very numerous, yellow to orange, greenish when wet. Hoffman. *Fructifications* when young slightly concave, or flat, of an orange yellow, bordered with a paler lemon yellow the colour of the crust. When older the fructifications swell into the form of tubercles, the border disappears, and the crust changes to brown yellow. *L. flavicans* seems to be only a variety of this. Mr. Griffith, whose extensive knowledge of this genus, aided by long continued observation, stamps a high authority upon his opinions, tells me he has long observed that the Lichens with farinaceous crusts become foliaceous, and that probably the L. candelarius, concolor, parietinus, and flavicans may be all the same plant under different circumstances.

(*L. candelarius.* Huds. With. Sibth. Hull. (but not of Linn.) *L. vitellinus.* Achar. Prod.—E. bot. E.) Rocks, walls, trunks of trees, old boards, and old pales. P. Jan.—Dec.

C. *Crustaceous, tiled, spreading, fixed.*

L. Tubercles brown black, with whitish borders when young: crust brownish, ash-coloured, tiled, rather granulated than leafy. leucophæ′us.

E. bot. 1501.—*Fl. dan.* 955. 2—*Dill.* 82. 2.

Composed entirely of granulated particles of a greyish blue colour, out of which rise a few *tubercles*, flat, fleshy, light reddish colour when fresh, blackish when dry. The under side of the crust is black, spongy, and like as if it had been burnt. Dill. The plant of the Fl. dan. and that of Dillenius are here given as the same, on the authority of Mr. Dickson; but the characters as given by Vahl and Dill. do not quite coincide.

L. scalaris. ACHAR. Prod.—On rocks thinly covered with soil, in the Highlands. [Summit of Carnedd Llewelyn. Mr. GRIFFITH. Stone fences in Cornwall, frequent.]

obscu'rus. L. Saucers brown, black; border pale brown; leaves darker brown, strap-shaped, many-cleft, the ends bent down.

Dicks. h. s.—E. bot. 982.—*Dill.* 24. 69—*Hoffm. lich.* 32. 2 —*Mich.* 51. 6.

Saucers very numerous, and frequently so crowded as to deform one another, borders thick. *Tubercles* besides, of the same colour as the leaves. Mr. WOODWARD. *Leaves* cut into very narrow segments, smooth, with numerous black fibres underneath. DILL.

Sun-burnt Lichen. L. pullus. LIGHTF. 825. *L. fuscus.* HUDS. 533. (*L. aquilus.* ACHARIUS. E. bot. E.) Rocks and larger stones near Bangor and other places in Wales, Westmoreland, and Scotland. [Rocks in Pengwern Frith, above the road leading from Llansannan to Llanufydd, in Denbighshire. Mr. GRIFFITH.]

lu'ridus. L. Tubercles black: leaves brownish green, white underneath, minute, thick, indented.

Fl. dan. 1064. 2.—*E. bot.* 1329.—*Mich.* 54. *ord.* 36. 4— *Dill.* 30. 134.

Tubercles rather hollowed at the top. *Leaves* thick, fleshy, concave, tiled; sometimes lobed. Dillenius had not seen this plant; his figure is taken from that of Micheli, the fructification in which is very imperfectly expressed. I am indebted to Mr. GRIFFITH for fine specimens in fruit which he gathered in North Wales. Mr. Dickson found it on rocks in the mountains of Scotland. *Lurid Lichen.* (About Eggleston, Durham. Rev. Mr. Harriman. E. bot. E.)

multif'idus. L. Saucers brown, scattered: foliage yellowish, semicylindrical, indistinctly many-cleft.

E. bot. 1375—*Dicks.* 9. 7.

Plant widely spreading, nearly circular, firmly adhering to the stone on which it grows; many-cleft; segments semicylindrical, waved, somewhat adhering to each other; blue black in the centre, with black dots; yellowish towards the extremities. Powdery male clusters scattered on the surface. *Saucers* scattered, small, concave, brown within, the border and the outside yellowish.

(*Incurved yellow-warted Lichen. L. incurvus.* ACHAR. Prod. E.) On stones, in Scotland. DICKS. iii. 16. [On stones near Llyn Aled. Mr. GRIFFITH.]

L. Saucers flat, tawny: leaves greenish, rounded, scolloped, gristly. cartilagi′neus.

Dicks. h. s.—E. bot. 1893—*Fl. dan.* 1006—*Mich.* 51. *ord.* 30. 1—*Hoffm. enum.* 19. 1—*Dill.* 24. 74.

Leaves small, roundish, somewhat notched, very thick, of a yellow herbaceous hue. Huds.—Fleshy. *Saucers,* the young ones concave and regular, the old ones flat and irregular. Woodw.

L. crassus. Huds. 530. and Gmel. *syst. veg.* (E. bot. Achar. prod. *L. cartilagineus.* Dicks. Lightf. With. E.) Rocks thinly covered with earth, and mountainous heaths. Near Newborough, on Llandwellyn Rocks; on Glyder Hill; about Malham, Yorkshire, Westmoreland, and King's Park, near Edinburgh.

P. Jan.—Dec.

L. Saucers green yellow, changing to full yellow; border paler: crust greenish with a tinge of yellow; somewhat tiled. mura′lis.

Hoffm. lich. 16. 1—*Jacq. coll. ii.* 13. 4. *a—E. bot.* 1695—*Mich.* 51. 4.—*Hoffm. enum.* ii. 1, (*not* 9. 1. *as cited in the description.)*

Dry, friable, circular, leafy at the edge, leaves crowded, pressed and firmly fixed to the stone or wood on which it grows, narrow, cut into segments, scolloped and cloven at the end. *Saucers* in the central part, very numerous, almost covering it, varying in colour, flattish, grey green, yellowish, tawny, reddish or brown, paler at the edge. Whole plant greenish when young and wet, dirty grey or yellow brown when old and dry. Hoffman.

(Not *L. pallescens* under which Reichard has inserted it as a synonym. No one who had examined both could possibly suppose them the same. It much more nearly resembles *L. car-ilagineus.* Mr. Woodward.

Radiated wall Lichen. L. saxicola. Achar. Prod. and E. bot. *L. muralis.* Dicks. Hull. Sibth. &c. Rocks and old walls. Not uncommon. Mr. Woodward. E.) P. Jan.—Dec.

D. *Somewhat crustaceous, leaf-like, tiled, loose.*

L. Saucers black: leaves strap-shaped, forked, flattish, pointed. fahlu-nen′sis.

Hoffm. lich. 36. 2-*E. bot.* 653.-*Fl. dan.* 958.-*Jacq. misc.* ii. 10. 2.—*Dill.* 24. 81.-*Hoffm. enum.* 17. 2.

Circular, leathery, thin, both surfaces shining, brown changing to black, curled at the edge, lobes blunt, white within. *Saucers* very numerous and crowded on the upper surface, concave, black, shining. JACQUIN.

Rocks and large stones. Near Langdale, Lancashire. HUDS. (On stones near the summit of Carnedd Llewelyn. Mr. GRIFFITH. About Invercauld, Aberdeensh. and Katelow, a mountain in Angus-shire. Mr. BROWN. E.)

squama'tus. L. Saucers black, rough, rather convex, imperfectly bordered: leaves green, rather glaucous, minute, thickish, rounded, but indented and angular.

Dicks. h. s.—Dill. 30. 135.

Leaves small, thick, leathery, with shallow segments, whitish underneath. DILL. In some plants the saucers are rather dark brown than black.

On the ground in turfy places, Scotland. Rocks in Cumberland. DICKSON.—(On a wall about a mile from Cerig y Druidion; road side leading to Denbigh. Mr. GRIFFITH. E.)

cilia'tus. L. Saucers brown black, fringed: foliage dark green, leaves slightly many-cleft, fringed.

Hoffm. enum. 14. 1.

Leafits strap-shaped, divisions slender, dull dirty green, glaucous grey when dry, blackish when old, fixed, firm to the bark of trees by numerous tendrils on the underside. HOFFMAN.

On rocks and stones. DICKS. iii. 16.

sty'gius. L. Saucers brown black, numerous, circular, border broad, scolloped; foliage brown black to purplish and quite black; leaves hand-shaped, tiled, bent at the end.

Hoffm. lich. 25. 2, *enum.* 14. 2.—*E. bot.* 2048.

Distinguished from the L. fahlunensis and omphalodes by the leafits being strap-shaped, with repeated forked divisions; and forming an irregular circle. Saucers very large when old. HOFFMAN.

Stygian Lichen. On the highest mountains in Scotland. DICKS. iii. 16.

stella'ris. L. Saucers blackish brown: leaves ash-coloured, oblong, narrow, jagged.

Hoffm. enum. 13. 2.—*Dill.* 24. 70—*Fl. dan.* 90; 7. 1.—(*E. bot.* 1697—The figure too green. E.)

Of a greenish hue when moist, when dry ash-coloured. HUDS. *Saucers* when young white or grey, being covered with a thin mealy pellicle, but as they enlarge and grow older the pellicle disappears, becoming black, with a border of the same colour as the leaves. Specimens sometimes found with only tubercles and no saucers. LIGHTF. Ash-coloured when fresh, whiter when dry. *Leaves* with narrow, oblong segments, diverging from a centre, smooth. *Saucers* on the central part, black, with a grey border; sometimes intermixed with mealy tubercles. DILL.

Black-shielded stellated Lichen. Trunks of trees, walls, and stones.—More frequent on the smaller branches than on the trunks of trees. DILL.

Var. 2. Saucers larger.

Fl. dan. 957. 2—*Hoffm. enum.* 13. 1—*Dill.* 24. 71—*Jacq. coll.* ii. 15. 2. *a. b*—*E. bot.* 2063—*Mich.* 43. 2.

In circles of 4 inches and more in diameter. *Leaves* when fresh rue-coloured, after being kept some years turning to russet-grey; segments stiffer, and not so closely united at their extremities. *Saucers* larger. LIGHTF. Deep glaucous green when wet, grey when dry, even whilst growing. *Leaves* stiff, segments blunt. Roots black fibres. *Saucers* numerous in the centre, of different sizes intermixed, glaucous when young, black when old; border the colour of the leaves. DILL.

" *L. pulverulentus.* ACHAR. prod. E. bot." *Green powdery stellated Lichen.* E.) Oak, beach, elm, and other rough trees. DILL.

Var. 3. *Saucers* with curled brims. R. *Syn. p.* 75. *n.* 75— The saucers of variety 2 when becoming old, have their outsides and brims covered with minute leaves, so as to appear curled. LIGHT.

Var. 4. Saucers large, purplish black; border white, regular. L. *stellariformis.* Hoffm. enum. p. 73. Specimen from Mr. Griffith, who gathered it on stones, about Garn, and observes that it seems to connect the stellaris with the ciliaris.

Some specimens of the L. stellaris come so near to the L. obscurus that I doubt whether the only difference is not from local circumstances. Mr. GRIFFITH.

L. Saucers brown, border white: foliage sea-green, with dots of the same colour; leaves tiled, lobes rounded. tilia′ceous.

Hoffm. enum. 16. 2—*E. bot.* 700.

Leaves in a circular form, wide-spreading, lobes jagged and indented. *Saucers* greenish when wet. HOFFMAN.

On the bark of trees. DICKS. iii. 16.

diffu'sus. L. Saucers rusty, brown, circular, flattish, raised; border whitish, scolloped: foliage glaucous, pale, tiled; leaves with many strap-shaped clefts, blunt, curled, powdery.

Dicks. 9. 6.—*E. bot.* 858.

L. aleurites. E. bot.—On old pales in Croft-castle Park, Herefordsh. DICKS. iii. 17.

physo'des. L. Saucers red brown; on pedicles: leaves whitish above, black underneath, hollow as if inflated: segments jagged, blunt.

E. bot. 126—*Fl. dan.* 1186. 2—*Hedwig. theor.* 31. 183. 184. 185—*Dill.* 20. 49—*Hoffm. enum.* 15. 2—*Mich.* 50. *ord.* 25. 1. 2.—*Jacq. coll.* iii. 8.—*Pet. gaz.* 14. 6.

Grows half upright, variously cut and divided, the shorter plants most cut, and assuming a circular figure. Segments blunt, as if lopped at the ends, and with 2, 3, or 4 clefts. *Leaves* smooth, grey white, or glaucous green, and convex above, hollowed, black, and rough underneath; formed of 2 layers with a hollow between them, which is peculiar to this species. The whole plant more or less mealy. *Saucers* on short foot-stalks, concave, brown green, or reddish or yellowish brown within, the outside colour of the plant. In my specimens those plants only are mealy which have no saucers. DILL. Dr. Smith observes, that it is rarely found with saucers, but that he has found the mealy protuberances in the same plant with the saucers. See E. bot. p. 126.

Trunks of trees, stones, stems of heaths. P. Jan.—Dec.

centrif'ugus. L. Saucers red brown; leaves pale yellow green, smooth, jagged, pointed from a centre.

Hoffm. enum. 10. 3—*Dill.* 24. 75.—*Hoffm. lich.* 16. 2—*E. bot.* 2097—*Fl. lapp.* 11. 2—*Buxb.* ii. 7. 3.

Distinguishable at first sight by spreading from a centre to the circumference and gradually decaying in the middle. LINN. Circular, flat, outer leaves largest, tiled, neatly scolloped and curled, with many clefts. Colour greenish, glaucous, or yellowish when growing on wood. *Surface* minutely dotted with black, or rough with very minute cylindrical substances. *Saucers* in the centre, crowded, large, irregular, red brown or black. HOFFMAN. Weis's and Lightfoot's descriptions good. *Leaves* usually covered with numerous granulations like *L. physoides*, and others of this division. *Saucers*, the small ones cup-shaped, and regular, the large ones much and variously deformed, in age the brown part dropping out, leaving the exterior cup which is then of the same colour with the leaves, except that the inside is rather greener. Mr. **Woodward.** *Leaves* disposed in a circular form, the outer ones the largest, elegantly scolloped, laid like tiles one over another, yellow green, black on the under side. *Saucers* reddish brown, edged with yellow green. **Dill.**

(*Greenish Chesnut-shielded Lichen. L. conspersus*, Achar. prod. E. bot. E.) Rocks, walls, large stones, and trunks of trees.
P. Jan.—Dec.

L. Saucers reddish brown, raised, thick: leaves brown green, mealy at the edge, rounded, ragged, greatly crowded, nearly upright. carno'sus.

E. bot. 1684—*Dicks.* 6. 7.

Leaves minute, brownish green, curling when dry. *Saucers* rather remote, some connected, rising from between and somewhat higher than the leaves, fleshy, smooth, paler underneath. **Dicks.**

Little Fleshy-shielded Lichen—Rocks on the mountains of Scotland. [Rocks on the side of the hill about 50 yards above Garthmeilio, the seat of R. W. Wynne, Esq. Denbighsh. Mr. **Griffith.**]

L. Saucers chesnut colour: leaves glaucous, indented, pitted, rough. saxa'tilis.

E. bot. 603—*Hoffm. enum.* 16. 1—*Jacq. coll.* iv. 20. 2—*Dill.* 24. 83—*Vaill.* 21. 1—*H. ox.* xv. 7. *row.* 4. 6.

Lightfoot's description good. The *mealy tubercles* found on the old and saucer-bearing plants as well as on the younger. Mr. **Woodward.** Circular when young, and from ½ to 1 inch diameter. *Leaves* short, segments broad, blunt, scolloped and indented at the ends; pitted on the upper surface, glaucous green; black and fibrous underneath; sometimes smooth though pitted; sometimes rough with flat mealy eminences. *Saucers* seldom found, reddish or blackish, the border the colour of the leaves. **Dill.**

Stones, rocks, and trunks of trees. P. Jan.—Dec.

It is used by the inhabitants of the North to dye purple.

Var. 2. Leaves sometimes in the winter acquiring a reddish tinge, in every other respect resembling the preceding. **Dill.**

L. Saucers tawny red, bordered: foliage tawny red; leaves tiled, many-cleft; distorted. ful'vus.

Dill. 24. 68.

Plant very small; saucers very small. Dill.
On rocks in Cornwall and Scotland. Dicks. iii. 16.

omphalo'des. L. Saucers dull purple; leaves hoary, smooth, blunt, many-cleft, sprinkled with rising dots.

E. bot. 604—*Dill.* 24. 80—*Vaill.* 20. 10—*Hoffm. enum.* 12. 2—*Mich.* 49. 2.

Colour dull purple, shining, smooth, with numerous black fibres underneath. *Leaves* interwoven, about an inch long. *Saucers* dull purple, and smooth within, grey on the outside and hairy, cracked at the edge. Dill.

Cork, Corker, or Arcell. *Kenkerig* Welsh. On rocks. Jan.—Dec.*

parieti'nus. L. Saucers tawny yellow: leaves full yellow, curled.

E. bot. 194—*Fl. dan.* 1005—*Dill.* 24. 76—*Col. ecphr.* i. 331. 2—*Hoffm. enum.* 18. 1.

Agrees with *L. candelarius* and *juniperinus* in colour, but the former consists merely of branny scales, the latter of loose leaves. The *parietinus* is an intermediate species. Linn. *Crust* indented, wrinkled, margin leafy. *Leaves* cut, and ending in blunt segments. *Saucers* on the foliage as well as on the central crust, small, yellow, with a border of the same or a paler colour. Varies in colour from greenish to deep golden yellow. Grey underneath. Dill. In age frequently losing its central *leaves* and *targets*, like the *centrifugus*. Mr. Woodward. Very common.

Trunks of trees, walls, tiles, wood, and stones. P. Jan.—Dec.

Var. 2. Leaves green.

E. bot. 194.

Moisture and shade render it more lax, leafy, and of a greenish or pale olive hue; so it commonly appears on trees and bushes; in which state it is the *L. juniperinus* of our British writers, E. bot. Mr. Dickson also assures me that the real L. juniperinus has never been found in this island.

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* It dyes wool of a brown reddish colour, or a dull but durable crimson or purple, paler but more lasting than that of Orchal. It is prepared by the country people in Ireland by steeping it in stale urine, adding a litte salt to it, and making it up into balls with lime. Wool dyed with it and then dipped in the blue vat becomes of a beautiful purple. With rotten oak it makes a good dark brown frize. Wool dyed with red wood, or sanders, and afterwards in corker, becomes of a dark reddish brown. Rutty. It has been used as a styptic.

L. Saucers brown green, flattish, on the edge of the leaf: leaves blackish green, many-cleft, tooth-scolloped. margina'lis.

E. bot. 1924—*Dill.* 19. 25—*Jacq. coll.* iii. 12. 1.

Leaves lying on the ground, brown green, black when dry, their ends frequently cut and curled. *Saucers* numerous, small, concave, bordered, brown green when fresh, reddish when dry. DILL. *Borders* raised.

(*Marginal Gelatinous Lichen.* Dr. Smith inclines to think *L. melænus* of Acharius scarcely a variety of this. E.) Rocks, and stones in the northern parts of Britain, and in Caernarvonshire. Near Lucton, Herefordshire. DILL. [Walls about Settle and Kirkby Lonsdale, Dr. J. E. SMITH. Fir plantation near Cefw House, Denbighsh. Mr. GRIFFITH.]

A. Oct.—June.

L. Saucers brown green; scolloped; leaves lobed, shining, brown green. oliva'ceus.

Hoffm. enum. 13. 5—*E. bot.* 2180—*Dill.* 24. 78—*Vaill.* 20. 8.

Olive green, black underneath. *Saucers* green within, grey on the outside, sitting, flat or concave, border scolloped, granulated. DILL.

Olive-coloured Leafy Lichen. Rocks, stones, and trunks of trees. In the wood on Shooter's Hill, Kent. Slinford, Sussex, and Bagley Wood near Oxford.

P. Jan.—Dec.

Var. 2. Saucers smooth. DILL. 182.

Hoffm. 13. 3. *and* 4—*Dill.* 24. 77—*Mich.* 51. *ord.* 19.

Generally grows in a circular form; thin, crustaceous, closely adhering. *Leaves* smooth, rather shining, brown green, segments blunt. *Saucers* rarely found, but where they do exist, the leaves are more cut and scolloped. The plants without saucers have numerous granulations in their substance. DILL. On the bark of trees.

Var. 3. Segments broader, more wrinkled, the middle elevated into wrinkles, sprinkled with numerous small grain-like warts. Saucers none. DILL. 183.

On birch trees. DILL.

E. *Somewhat crustaceous*, CUP-BEARING.

folia'ceus. L. Cups conical, very short, with black tubercles on the edge: leaves grey or yellow green, ascending, cloven into many segments, pure white underneath.

E. bot. 1392—*Dill.* 14. 12. *A, B, D.*—*Vaill.* 21. 3—*Mich.* 42. *ord.* 8. 1 *and* 2—*H. ox.* XV. 7. *row.* 3. 3. *at p.* 632.

Leaves nearly upright, jagged, curled, bearing cups. Cups very short, conical. HUDS. *Leaves* large, half upright, even, cartilaginous, flat, branches like an Elk's horn, edges rather turned in, grey or yellow green above, white underneath. *Cups* from the disc and the edges of the leaves, very small, slightly hollowed, rounded or angular, edges often very minutely toothed. Such is its state in winter, but in summer the edges of the leaves are wasted, only the middle parts remaining, the cups become more or less proliferous, larger, and edged with small black tubercles. DILL.

Elk's-horn Cup Lichen. L. foliaceus. Huds. ed.1—*L. alcicornis.* Lightf. 872. Relh. n. 1083. ACHAR.—E. bot. On dry barren commons; on Black Heath; on Snowdon. DILL.

Var. 2. Stem branched; branches running into leaves. Leaves upright, with winged clefts. *Dill. ib. e. f D.* Trowbridge, Wiltshire, DILL.

pyxida'tus. L. Tubercles brown: cup grey green, simple, somewhat scolloped at the edge.

E. bot. 1393—*Vaill.* 21. 8—*Dill.* 14. 6—*Walc. No.* 9. *f.* 2—*Mich.* 41. *ord.* 8. 1, *K, the first L.Q*—*Tourn.* 325. 2; *D.*—*Ger. em.* 1560. 6—*Park.* 1308. 11—*Vaill.* 21. 7, *is thought by Dill. to be an old plant.*

Crust at first granulated, in time forming *leaves*, which are of no certain figure, small, cut at the edge, greenish above, white underneath. *Tubes* ½ to 1 inch high, springing from the base of the leaves, thick set upwards, and expanding at the summit like a drinking glass; scolloped at the edge, the hollow of the upper expanded part separated by a partition from the hollow of the tubular part below. These tubes are of a light grey colour; sometimes mealy. DILL.

Common cup Lichen. Var. 2. Cups proliferous from the centre.

Dill. 14. 6. *D. to H.*—*Vaill.* 21. 5—*Walc. f.* 3.

Cups sometimes rising one out of the other to 5 stages, and sometimes with small sitting brown or blackish tubercles. LIGHTF.

Var. 3. Cups proliferous from the edge.

Vaill. 21. 9—*Dill.* 14. 6. *I.*—*Walc. f.* 4—*H. ox.* 15. 7. 4, *p.* 634—*Mich.* 41. 7 *and* 8.

Cups rising sometimes to 4 stages. *Stalks* sometimes leafy. LIGHTF. Frequently covered with much greenish meal, and a leafy crust, but the base is only a greenish crust, not leafy. DILL.

Var. 4. Cups proliferous, with tubercles.

Vaill. 21. 11—*Dill.* 14. 6, *C*, *K*, *L*, *M*.

L. tuberculatus. Relh. n. 879. Heaths and such like dry places, on stones and trunks of trees covered with a thin coat of soil. DILL. Woods and walls. RELH. Heaths, woods, banks, and rocks, and about the roots of old trees. P. Jan.—Dec.

L. Tubercles brown, small, fixed to the indented edge of the cup: stem cylindrical. **fimbria'tus.**

Dill. 14. 8, *A*, *B.*—*Hap.* iii. *Lichen* 2, *a and c.*—*Mich.* 41. *ord.* 8. 5 *and* 4—*Vaill.* 21. 6—*Mich.* 41. *ord.* 8. 4.

Stems slender. Tubercles and cups small, the latter finely serrated at the edge. *Leaves* lying on the ground, small, variously cut, grey green, less grey than the cups. *Tubercles* small, brown, fixed to the little teeth of the cup, not commonly occurring. DILL.

Var. 2. Proliferous from the serrated edge of the cup: sometimes to 3 stages.

Dill. 14. 8. *C. and Hap.* iii. *Lichen*, 2—*Vaill.* 21. 9.

Moors, heaths, dry pastures, common. P. Jan—Dec.

It is generally suspected that this is only another variety of the L. pyxidatus.

Var. 3.

Dill. 15. 20.

Leaves at the base small, scolloped, rather hoary, *Stems* ½ to 1½ inch high, slender, greyish, smooth, or with a leafy greenish crust. *Tubercles* terminating, generally on a broad base somewhat resembling a cup, small, roundish, brown; black when dried. DILL.

Woolwich Heath. DILL.

L. Tubercles reddish brown, cups finely serrated, stems grey, changing to brown, forked, branched. **gra'cilis.**

E. bot. 1284—*Dill.* 14. 13.—*H. ox.* xv. 7. *row* 3. 6, *p.* 632—*Mich.* 41. *ord.* 7. 5.

Stem in some plants tapering to a point, in others terminated by a cup tipt with tubercles. LINN. *Leaves* at the base numerous, deeply cut, grey green, hoary underneath. *Stems* 1 to 3 or 4 inches high, but the more they are branched the shorter they are; at first grey, at length brownish towards the top, and wholly brown when in fruit; slender, hollow, smooth; top slender, except when bearing cups and tubercles, simple or branched. *Cups* small, serrated at the edge. *Tubercles* on the teeth, roundish, reddish brown. DILL.

Stag's-horn Cup Lichen. Mountainous and rocky heaths. Leath Hill, Surry.

radia'tus. L. Tubercles brown: cups unequally toothed, radiated; stems tall, cylindrical, a little branched.

E. bot. 1835—*Dill.* 15. 16—*Fl. dan.* 1188. 3.—*Mich.* 41. *ord.* 7. 3, 4. 2—*Scheuchz. it.* 1. 5. 3—*Vaill.* 7. 7, *said by Dill. to be ill done.*

Leaves at the base, sometimes also fixed to the stem, small, finely cut, hoary green above, white underneath. *Tubes* greyish green, about two inches high, soft, hollow, simple or branched, thickest upwards, ending in shallow cups, with oblong, hollow horn-shaped spokes on the edge. These spokes are not branched, but they sometimes terminate in smaller cups, supporting other smaller spokes. *Tubercles* on pedicles on the edges of the cups, or terminating the branches, reddish brown. DILL.

Radiated Cup Lichen. Enfield Chace, Middlesex. DILL. [Top of Carnedd Llewelyn. Mr. GRIFFITH.]

ventrico'sus L. Tubercles brown: cups toothed: stem swollen, whole plant hoary and woolly.

Dill. 15. 17.

Stem nearly cylindrical, expanding into a cup, which branches out into a number of sub-divisions, which terminate in their turn in other cups, divided into teeth, and tipt with brown tubercles. Growing in clusters. *Stems* upright, stiff, thinnest at bottom, swelling at top into a cup, which branches out into numerous rays or spokes bearing other cups. Plant about 2 inches high, covered with a hoary wool. *Cups* on the branches bearing small brownish *tubercles* in the spring. *Leaves* small, scolloped, hoary. DILL. On rotten wood, mostly in woods. DILL.

defor'mis. L. Tubercles reddish: cups toothed: stem seldom branched, swollen.

E. bot. 1394—*Fl. lapp.* 11. 5—*Mich.* 41. *ord.* 7. 1—*Dill.* 15. 18.

Stem upright, sometimes crooked, thick as a goose quill, sometimes with 1 or 2 branches, thickset upwards, ending in small shallow cups, edged with 4, 5 or more teeth. Colour dirty grey green. Surface mealy and woolly, often incrusted with crisp foliage. *Tubercles* small, reddish. *Leaves* small, cut, hoary, grey on the lower part of the stem. DILL.

Clumsy Indented Cup Lichen. On rotten wood mostly in woods, DILL.—and heaths. RELH.

L. Tubercles small red ; stem pale, grey, simple, slender : leaves fine green, white underneath. filifor'mis.

E. bot. 2028—*Dill.* 14. 10—*Mich.* 41. 6—*Vaill.* 26. 10.

Leaves compact, spread on the ground, variously cut, segments rather raised, fine green above, white underneath, rather thick, stiffish, large for the size of the plant and numerous, by which and by the smallness of the cups it may be readily distinguished. *Cups* in the winter grey white, in the spring brown. *Tubercles* not common, very small, scarlet, on short foot-stalks, the cups now splitting into segments forming stalks to the tubercles. DILL.

Thread-shaped Lichen. *L. tubiformis.* Lightf. 871. Black Heath, near Greenwich, and other similar situations. DILL. Woods, at the roots of old trees, LIGHTF.—and walls. RELH.

Var. 2. Cups very small, brown within : stems very short.

Dill. 14. 11.

Leaves numerous, small, glaucous green above, white underneath, smaller, shorter, broader, less cut and less upright than the preceding. *Cups* shorter, brown within, very small. DILL.

Heaths near Charlton and Woolwich. Jan.—Feb. DILL.

L. Tubercles scarlet : cup simple, greenish grey, very entire, stem cylindrical. coccif'erus.

E. bot. 2051—*Fl. dan.* 1188. 1—*Happ.* iii. *Lichen* 5. 1—*Dill.* 14. 7—*Vaill.* 21. 4—*Mich.* 41. *ord.* 8. 3.

Cups greenish grey, sometimes springing one out of another. Tubes slender, cups at first but little hollowed, edged with beautiful scarlet tubercles. DILL.

Scarlet Cup Lichen. Common on heaths. Oct.—April.

L. Tubercles scarlet : cups entire : stem simple, rather distended. cornu'tus.

Dill. 15. 14—*Hoffm. lich.* 25. 1.—*E. bot.* 1836.—*Barr.* 1277. 1.

Crust on the ground, supporting curled leaves, and these producing tubular fructifications, upright or bending, smooth or rough with a mealy crust, greenish or greying, hollow, entire at the top, pointed or forked, with or without tubercles, sometimes branched at the base. *Tubercles* on the edge of the tubes which then appear as if cut across. DILL.

Horned Cup Lichen. On moist heaths and moors. [On oak pales in Edgbaston Park.]

digita'tus. L. Tubercles scarlet: cup entire, knotted: stems very much branched: branches cylindrical.

Dill. 15. 19—*Fl. dan.* 1188. 2.

Tubercles numerous, scarlet. In doubt whether to reckon this as bearing cups. When without tubercles the stems terminate in blunt unequal finger-like horns, forming a kind of cavity but not a proper cup. *Stems* hollow, 1 or 1½ inch high, hoary grey, mostly branched, of unequal thickness, rough with greyish or brownish eminences. *Tubercles* terminating, numerous, fine scarlet. *Leaves* small, hoary, slightly cut. DILL.

Barren heaths and woods at the decayed roots of trees. DILL. Feb.

cornuco-pioi'des. L. Tubercles scarlet: cup grey green, shorter than the leaves; edged with a leafy fringe.

Dill. 14. 9.

Crust leafy, greenish. *Cups* grey, edged with a leafy fringe, tipped with small brown tubercles, often proliferous. DILL.

Moors and heaths, with L. cocciferus. P. Jan.—Dec.

Many think this only a var. of the L. cocciferus.

F. *Somewhat crustaceous*, SHRUB-LIKE.

siliquo'sus. L. Saucers grey white, lateral: plant solid, compressed, somewhat branched.

Dill. 17. 38—*H. ox.* xv. 7. *row* 3. 4.

Stems many, from a chalky base, upright, stiff, swollen but compressed, filled with a white fungous substance, 1 to 2 inches high, simple or with 2 or 3 forks; at first even, but with age furrowed lengthwise and divided across like a pod containing seeds. In time these inequalities project like small warts, of a grey white colour, whilst the rest of the plant is grey green, becoming yellowish with age. DILL. When full grown they form concave saucers.

On the large stones called Grey Wethers scattered over Marlborough Downs, Wiltsh. and on rocks in Wales. DILL.
P. Jan.—Dec.

L. Tubercles black within, globular, terminating: plant brownish, polished, solid, much branched; branches cylindrical. globif'erus.

Hoffm. lich. 31. 2—*Dill.* 17. 35—*E. bot.* 115—*Fl. dan.* 960 —*Mich.* 39. 6.

Similar to *L. paschalis*, but smoother, leafless, and the branches terminated by globular tubercles, hollow with a small mouth, gaping spherically, black within. LINN. Slender, very much branched, glaucous grey, 1 to 2 inches high, cylindrical, soft when fresh, stiff when dry, smooth. *Tubercles* terminating, numerous, globular, containing a black powder, the outer coat thick, cracking in 3 or 4 places. DILL.

L. globifer. Gmel. *syst. veg.* Rocks at Tunbridge. On the Stieperstones, Shropshire. Snowdon, and in the Highlands and Lowlands. [Rocks in the mountainous parts of Dartmoor, Devonshire. Mr. NEWBERRY. Rocks in the north of England. Mr. WOODWARD.]

L. Saucers filled with black powder, terminating: plant solid, branches nearly cylindrical, blunt. fra'gilis.

E. bot. 114.—*Dill.* 17. 34—*Hoffm. lich.* 33. 3—*Fl. lapp.* 11. 4—*Jacq. misc.* ii. 9. 6. c.

It cannot be gathered without breaking, except when moist, as it is more brittle than a Coralline, which it also much resembles. LINN. Stem and branches short, cylindrical, solid, brittle, blunt, rather shining, dirty white, often reddish at the ends: white within. JACQUIN. Grows compacted together, shrub-like, 1 or 1½ inch high. *Roots* woody, brown black, penetrating the fissures of schistus rocks. *Stems* stiff, like ivory. *Branches* numerous, cylindrical, smooth, blunt at the end, forked or entire. Fruit-bearing plants thicker, broader, compressed, pitted and unequal. *Tubercles* hard, solid, globular, filled with sooty powder. DILL.

On rocks and stones on mountains and high heaths—(Rocks in woods near St. Ives in the parish of Bingley, Yorksh. where I have frequently observed it in fructification, even in the driest season. HAILSTONE in WHITAKER's Craven. E.)
P. Jan.—Dec.

L. Tubercles dark brown, very small, few, lateral, glo- vermicula'ris.

bular; branches white, nearly cylindrical, awl-shaped, spreading from one central point.

Jacq. coll. ii. 12. 2—*Hoffm. lich.* 29, 1, 3.—*Dicks.* 6. 10—*E. bot.* 2029.

In tufts. Issuing and diverging from one central point. Awl-shaped, 2 to 3 inches long; soft, hollow, snowy white, reclining, very rarely branched, sometimes here and there a little tooth is found, but no leaves. JACQ. *Stems* awl-shaped, tapering to a point, irregularly matted together, variously bending, rarely forked, here and there a short lateral branch, not unlike tubercles, hollow within, tough and pliable when moist, brittle when dry. HOFFMAN.

Vermicelli Lichen. L. vermicellaris, and also *L. subuliformis* of Gmel. *syst. veg.*—Among moss on the higher mountains of Scotland: [at or near their summits: also on moors between Forfar and Cortachy. Mr. BROWN.]

rangiferi'-nus. L. Tubercles brown: plant hoary, hollow, very much branched; terminating branches mostly turned downwards.

Dill. 16. 29—*Fl. dan.* 180—*E. bot.* 173—*Mich.* 40. 1—*Ger.* 1380. 5—*Ger. em.* 1572. 5—*Park.* 1310. 8—*Kniph.* 6.

Branches perforated in the forks. LINN. Light, brittle, hoary when dry; grey green or whitish, tender and soft when fresh. Surface covered with mealy particles. Has neither leaf nor leafy crust. *Roots* not easy to find; it adheres slightly to the earth and to mosses, from which it readily separates. But many species of Lichen seem destitute of roots, and to be nourished by the leaves, or by a mucous matter at the base. About 2 inches high, divided and subdivided into branches all the way up, the ends turning down. *Tubercles* small, roundish, reddish, shining, black when dry, on the terminations of the branches. DILL.

Var. 2. Ends of the branches reddish.

Dill. 16. 30—*Fl. dan.* 539.

Smaller branches reddish, and the whole when old turning brown. *Tubercles* darker brown than those of the preceding, more crowded, more frequently found. *Branches* sometimes bearing small crisp leaves. DILL.

Heaths and high exposed mountainous situations. DILL.—and woods. HUDS. P. Jan.--Dec.*

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* The Laplanders could not exist without this plant. It is the food of the rein deer, which will grow fat upon it, and the rein deer supplies every necessary of life for the contented people of that inhospitable climate.

L. Tubercles reddish brown, small, globular, solitary: plant somewhat forked, branches undivided, awl-shaped. subula'tus.

Dill. 16. 26—*Ger.* 1374. 8—*Park.* 1308. 12—*J. B.* iii. 767. 2.

Stems 1 to 2 inches or more in height, slender, grey, or greenish, white when dry, smooth, not branched at bottom. *Leaves* small, scolloped, grey, hoary underneath. *Tubercles* small, globular, solitary, red brown. Dill. *Stem* sometimes fringed with a few scattered crustaceous leaves. *Tubercles* small, brown, globular, at the ends of the branches.

Horned Moss. Woods and heaths.

L. Tubercles blackish brown, somewhat globular, alternate: plant grey or grey brown, solid, smooth, stiff, cylindrical, leafless, somewhat branched. Roccel'la.

Dill. 17.39—*E. bot.* 211—*Pluk.* 205. 6—*Pet. gaz.* 7. 12.

Two or 3 inches high, rising out of a chalk-like basis. *Stems* cylindrical, simple or branched, white like chalk within. Dill. *Tubercles* white within.

Rocks on the coast of Guernsey, Mr. Gosselin, in Dicks. iii. 19. On Portland Island. Lord Lewisham. *E. bot.* Rocks near Tintagel Castle, Cornwall. Mr. E. Forster, jun. in Guide. E.)

L. Saucers blackish brown; terminating: branches solid, compressed, branched, blackish at the ends. tris'tis.

E. bot. 720—*Dicks. h. s.*—*Fl. dan.* 1126. 2—*Hoffm. lich.* 34. 1—*Weber* 5—*Dill.* 17. 37—*Hall. hist.* 47. 1—*Jacq. misc.* ii. 9. 6; *and coll.* ii. 13. 5.

Grows in dense tufts. *Stems* about 1 inch long, reclining, moderately broad, compressed, solid, smooth, divided into a few horn-shaped branches, when fresh brown-olive, when dry blackish; stiff, tough, horny, pellucid when moist. *Tubercles* terminating, plano-convex, circular or oblong, of different sizes, blackish brown, fleshy, fungous and white within. In some plants *saucers* are produced at the ends of the branches, flat or gently concave border regular, of the same colour with the saucer, sometimes bearing horn-shaped branches. These saucers being smaller than the tubercles are probably changed into tubercles. Dill.

L. corniculatus. Lightf. *L. radiatus.* Huds. On Snowdon on the top of the rocks from Cwn Brwynog towards Ardhu.

DILL. [On Carnedd Llewelyn. Mr. GRIFFITH.] Highland Mountains, Ross-shire, and Isle of Sky. LIGHTF. and HUDS. [On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY.] P. Jan.—Dec.

his'pidus. L. Tubercles red brown, terminating: plant solid, very much branched; branches straddling, rather compressed, angles blunt, the ends forked, pointed.

E. bot. 452—*Hoffm. lich.* 5. 2—*Dill.* 17. 31—*Mich.* 39. 7—*Vaill.* 26. 8—*H. ox.* xv. 7. *row* 3. 11.

Little branches scarcely prickly, the ends forked, pointed. HUDS. Tufted, shrubby, much branched, 1 or 1½ inch high. *Branches* interwoven, compressed, pitted on each side, dividing and subdividing in forks; ending in fine thorns; dark brown when wet, almost black when dry, white within. Saucer-like tubercles terminating the larger branches, red brown, thorny at the edge, horizontal. Not often found with saucers. HOFFMAN.

L. islandicus. γ. HUDS. &c. but whatever relation it may bear to that species, the investigating botanist would certainly expect to find it in this subdivision.

On Stieperstone, Shropshire. Heaths about London, and hilly parts of Cambridgeshire. DILL. [On rocks in Dartmoor, Devonshire. Mr. NEWBERRY.]

(This plant, so rare in our northern climate, grows abundantly in the Islands of the Archipelago and Canaries, where a fine red pigment called Lake is prepared from it. Dr. SWEDIAUR. E.)

uncia'lis. L. Tubercles reddish brown, very small: plant hollow, perforated; ultimate branches very short, acute.

E. bot. 174.—*Dill.* 16. 22.

Quite hollow; very brittle when dry. WOODWARD. Grows in dense tufts. *Stems* short, but little branched, longer and more branched with age, hardly more than an inch high, yellowish or greenish white, quite white and brittle when dry. *Tubercles* very small, reddish brown, disposed like stars on the horn-shaped extremities of the branches. I have sometimes, though rarely, found some whitish scolloped foliage at the base. DILL. Perforations at the origin of the branches.

Heaths and stony places in mountainous situations. [On dry heaths and rocks thinly covered with earth. In Dartmoor, Devonshire. Mr. NEWBERRY. On moors in the north of England. Mr. WOODWARD.] P. Jan.---Dec.

Var. 2. Larger and less crowded in its growth.

Dill. 16. 21—*H. ox.* xv. 7, *row* 3. 7. *p.* 633—*Mich.* 40. 2.

From 2 to 4 inches high. *Stems* thick, tender, smooth, forked again and again, but not much branched, armed at each division of the forks with soft thorns, open at the ends, terminating in 3, 4, or 5 rays. *Tubercles* infrequent, small, reddish. Plant when fresh, pale yellowish green, or whitish; quite white when dry. DILL.

High heaths. Leath Hill, Surry, and the heath between Lippock and Petersfield, Hampshire. DILL.

L. Tubercles olive brown, terminating: plant solid, covered with minute crustaceous leaves. pascha'lis.

Dicks. h. s.—*E. bot.* 282—*Dill.* 17. 33—*Hoffm. lich.* 5. 1—*Mich.* 53. 5 *to* 8—*Fl. dan.* 151—*Happ.* ii, *Lichen.* 2—*H. ox.* xv. 7. 12—*Scheuch. it.* 19. 4. *at p.* 136—*Pet. gaz.* 65. 7.

Stems very smooth, beautifully incrusted with leaves, especially when viewed through a magnifying lens. Eaten by rein deer. LINN. Upright or decumbent, many roundish stems issuing from a larger stem, divided and subdivided, the extremities bent, woody, flaccid when wet, pale sea-green to yellow or red brown. Young plants covered with a brittle crust. *Warts* very minute, numerous on the extreme branches. Tubercles like *saucers*, single or crowded, of a brown colour, are scattered over different parts of the plant. From 1 to 4 inches high. HOFFMAN. Woody at the base, fixed like sea weeds to the rocks. *Stems* tough, woody, variously branched, zigzag, 1 to 2 inches high. *Stems* incrusted, sometimes naked, especially in the lower part of the older plants. Branches generally incrusted with small granulations. *Tubercles* single, or in clusters, round, red brown, smooth. DILL.

Upon rocks on high mountains. [Near Ambleside, Cumberland. Dr. J. E. SMITH. In the mountainous parts of Dartmoor, Devonshire. Mr. NEWBERRY.] P. Jan.---Dec.

L. Tubercles brown red, numerous, terminating: plant hollow, very branched, branches thorn-like. spino'sus.

Dill. 16. 25—*Mich.* 40. 5, *and* 3—*Hag.* 2. 11—*Col. ecphr.* ii. 83. 1—*Park.* 1310. 9.

Stem short. Branches numerous, wide spreading, short, hollow, cloven at the end, greenish, white within. COL. *Ecphr.* *Tubercles* numerous, terminating, brown red. *Leaves* none. DILL. Branches like the horns of a stag. Forms the connecting link between the L. uncialis and L. subulatus. HUDS.

Barren and mountainous places. DILL.

Papilla′ria. L. Tubercles flesh-coloured, terminating: plant hollow, whitish, leafless; branches few, very short, blunt.

E. bot. 907—*Jacq. coll.* iii. 3. 2—*Dill.* 16. 28.

Hardly ½ an inch high. *Stems* slender, white, smooth, unequal, with here and there a knot, as if jointed. *Branches* very short, terminating, ending like the top of a double tooth. *Crust* cracked. Dill. (Round, brown, solitary little *tubercles* terminate each stem. *E. bot.* E.)

Papillary Lichen. Heaths. Near Bagshot on the road to Farnham. Dill. 107. (Mousehold Heath, Norwich, towards Rackheath. *E. bot.* E.) Spring. Winter.

furca′tus. L. Tubercles tawny red, small: plant branched, branches upright, forked.

Dill. 16. 27. —*Hag.* 2. 10—*H. ox.* xv. 7. *row* 3. 1. *p.* 632 —*Vaill.* 26, 7, 7, 7—*Mich.* 40. 4, *and D.*

Branches more numerous and shorter than in the preceding, and also more leafy. *Tubercles* terminating, small, round, flesh-coloured or yellowish. Dill.

Var. 2. Leaves remarkably crisped and leafy.

Dill. 16. 27. *D.*

Sometimes upright, sometimes bowed. Leaves and warts numerous. Dill.

musci′cola. L. Saucers blackish green: plant crustaceous, very much branched; branches very short, interwoven, black green.

Dicks. 6. 9.

Rocks growing on moss, on the higher mountains of Scotland. [About Garthmeilio, the seat of R. W. Wynne, Esq. M. P. abundantly. Mr. Griffith.]

G. *Somewhat crustaceous*; Thread-like.

ochroleu′cus. L. Tubercles mealy, scattered: plants yellow white; upright, branches forked, straddling; points forked, black.

Hoffm. lich. 26. 2—*E bot.* 2374.

Branches interwoven, subdivisions more and more slender, the terminating ones hair-like. Surface smooth, almost shining. Hoffman. This very species has no root, and no support but what it derives from its smaller extreme branches which entwine themselves about heath, grass, &c. Mr. BROWN.

Shrubby Sulphureous Lichen. High mountains in Scotland. DICKS. iii. 19. [On Ben Bourde, Lochaine y Gair, and on many very high moors about Invercauld, in abundance. Mr. BROWN.] Aug.

L. Tubercles whitish, mealy, very minute: plant pendent, compressed at the divisions of the branches. juba′tus.

E. bot. 1880.—*Dill.* 12. 7—*Happ.* iii. *Lichen.* 4.

In greatest perfection in winter and spring; hanging down like the tail of a horse. *Stems*, the upper and thicker ones compressed, brown green to black: the slender thread-like stems cylindrical, smooth, not hard, greenish, not much branched, but sometimes twisted; and very much matted together. DILL. *Tubercles* very minute, lateral, sitting; sometimes though rarely terminating and pear-shaped.

Wiry Lichen. Rock Hair. On rocks and old trees in the West Riding of Yorkshire. On rocks in Chorley Forest, Leicestershire, and on the side of the Derwent. Derbysh. DILL. Wales and Scotland. HUDS. and LIGHTF. [Mr. Gough of Kendal favoured me with a fine specimen about 9 inches long, of a bright bay colour, in some places tending to blackness. He supposes this colour might be caused by its seclusion from the light, for it grew near Orton in Westmoreland in the gallery of a copper mine, hanging from the roof and timbers at the distance of 2 or 300 yards from the entrance. He since informs me that he has got specimens from a mine near Keswick of the length of 6 feet 3 inches.] P. Jan.—Dec.

L. Tubercles mealy, scattered: plant upright, very much branched. hir′tus.

Hoffm. lich. 30. 1—*E. bot.* 1354—*Ger.* 1372. 5—*Dill.* 13. 12—*Bar.* 1277. 4.

Stem very short, woody. *Branches* many, sending out shorter lateral branches 1 to 2 inches or more in length, grey green, beset with thin stiff fibres. DILL. Paler than the L. floridus, grey green or yellow white; branches more crowded and shorter. HOFFMAN. (*Tubercles* mostly on the stem, lateral, flesh-coloured, rugged. *E. bot.* E.)

Common Rough Lichen. Woods, thickets, old hedges, and park paling. Stumps of old pear trees, Herefordshire. Mr. STACKHOUSE. (In fructification near Lewes, Sussex. Mr. BORRER. And on birch trees near Avemore, in Strathspey, Scotland. Mr. BRODIE. *E. bot.* E.)

chalybeifor′mis. L. Plant prostrate; branches straddling, waved and matted together.

Dill. 13. 10—*Fl. dan.* 262.

Stems stiff, cylindrical, diverging, variously bending, not crowded, 2 or 3 inches long, but little branched, grey to brown green. Growing on the trunks of oaks it does not hang down, but clings to the bark. DILL. Fructification not discovered. (*L. jubatus. β.* E. bot. Dr. Smith imagines this plant to be the same species as L. jubatus of LINN. ACHAR. WITH. &c.E.) Trunks of trees, stones, and old wood. [On the south end of Kendal Fell, sometimes on the rocks, but more commonly on the dwarf Junipers, the branches of which it covers, giving the shrubs a grotesque appearance. Mr. GOUGH.]

exi′lis. L. Saucers brown black; plant black, roughish, opake; very much branched; matted together.

Dill. 13. 9; *resembles it;* (Lightfoot.)

Saucers nearly as large as white Poppy seed, hemispherical, bordered, black, the bottom blackish brown, the edge very entire. HUDS. Seems to be between a Lichen and a Conferva. I have examined many scores, but never found it in fruit. Mr. NEWBERRY. Have examined thousands of specimens, but never found it with saucers. Mr. GRIFFITH.

L. scaber. Huds.—On the most naked rocks of the Highland mountains. LIGHTF. [On rocks whose surfaces lie nearly even with the ground, on the sides of hills, the soil of which is peat earth, in Dartmoor, Devonshire. Mr. NEWBERRY.]

P. Jan.—Dec.

lana′tus. L. Plant nearly black, opake, prostrate, very much branched, matted together.

Jacq. misc. ii. 10. 5—*Dill.* 13. 8.

Resembling the L. *pubescens*, but much finer, nearly as fine as hair, less rigid, nay rather soft, very much branched, decumbent, black green, opake. JACQ. Two or 3 inches long. *Branches* not compressed, blacker and more crowded than in the L. *jubatus*, diverging in various directions, more branched and sub-dividing into shorter and more numerous hair-like segments, matted together. DILL. Branches sometimes swollen as if jointed. Can these swellings ever form the fructification? Mr. Griffith is satisfied that the L. lanatus and L. chalybeiformis are not distinct, nor have I yet seen any specimens which can justify a different opinion.

Rocks and stony places. In Cornwall. About Borth one mile from Bangor, North Wales. DILL.—In the Highlands and Lowlands. LIGHTF.—[On rocks on the sides of hills on

Dartmoor, Devonshire, Mr. NEWBERRY.—Rocks about Llyn y Cwn, Caernarvonshire, but never in fruit. Mr. GRIFFITH.]

P. Jan.—Dec.

Var. 2. Branches inosculating. *Jacq. coll.* ii. 13. 6.

L. Saucers olive colour, changing to tubercles: plant black, shining, prostrate, very much branched, matted together. **pubes'cens.**

Jacq. misc. ii. 9. 7—*Dill.* 17. 32.

Very black, exceedingly tender, resembling very fine wool or rough silk. LINN. This elegant plant is not more than ½ inch high, spreading, without any proper stem; branches very slender, interwoven like lace; divisions forked. DILL. Of a black fuscous colour, but paler towards the extremities. *Saucers* near the centre of the plant of an olive colour; very rarely found. They are at first concave with an inflected margin, wrinkled, when magnified. They scarcely rise above the thread-like branches, but at length the margins become reflected and the saucer more elevated, assuming the shape of a tubercle about the size of a vetch seed. The plant has not the polished appearance when in fruit. Mr. GRIFFITH. From the specimens before me it would seem that the plant in its younger state is quite black and polished, brown black when older, losing its polish, and when very old bleaching to pale brown and even to white. Linnæus had given the above figure of Dillenius to his variety of the L. islandicus marked γ, but Mr. Lightfoot after an examination of the original specimen of Dillenius and comparing it with the figure, was decidedly of opinion that Linnè had been mistaken, and that it was really the L. pubescens. In a finely fruited specimen sent by Mr. Brown the saucers are, sometimes edged with prickles like projections, probably the origin of young branches; they are brown black on the surface, white and pithy within. Mr. Brown says it always produces fructifications on the summit of Lochain in Breadalbane, though rarely elsewhere in the Highlands.

Rocks and stony places in Westmoreland. HUDS. On Snowdon. DILL.—Glyder Vawr, near Snowdon. PENN.—[Summit of Carnedd Llewelyn, and Garn Davidd, Caernarvonshire. Mr. GRIFFITH.]

L. Tubercles flesh-coloured, rugged: plant pendent, cracked and swollen. *E. bot.* **articula'tus.**

E. bot. 258—*Col. ecphr.* ii. 83. 2—*Park.* 1312. 5—*Dill.* 11. 4—*H. ox.* xv. 7. *row the last*, 11—*Mich.* 39. 1.

Plant white; 6 to 12 inches long. *Stem* thick, branches very long, terminating sub-divisions very fine, hanging down. Sometimes smooth and regular, sometimes knotted; the smooth branches the finest, most flexible, and most sub-divided. DILL.

In woods on branches of trees. Wood near Stoken-church, on Beech near Burnley, Lancashire, and on Hazel in Gattley Park, Herefordshire. DILL. P. Jan.---Dec.

Var. 2. *barbatus.* Tubercles flesh-coloured, small, few: plant pendent, rather jointed; branches thread-shaped, expanding.

Dill. 12. 6.

Two feet or more in length, branches not much thicker than a sewing thread, greenish-white. Not much branched, but the number of threads together form a considerable large bush or tail. These straight threads send out lateral fibres throughout their whole length, either simple or divided, standing out sidewise, not pendent. *Saucers* few, rarely met with, small, flesh-coloured. DILL. It is on the authority of Dr. Smith that we place this as a var. of L. *articulatus.* L. *barbatus.* LINN. &c. In both kinds the stem and branches consist of a greenish outward crust inclosing a white woody thread, which runs through the whole plant, and is surrounded by white wool like fibres which connect it with the crust.

Branches of trees. Forest of Dean, Gloucestershire, and near Bishop's Castle. DILL.—Pine Forests, Scotland. LIGHTF. [Oldfield wood near Kendal. Mr. GOUGH.]

(Another extraordinary variety has been found by Mr. Brodie growing upon broken sand banks in the warren opposite Exmouth. The stems are of the thickness of the little finger, and uniformly inflated, not in that interrupted manner which gives the plant its common pointed appearance. This is conjectured to be a distinct species. Bot. Guide. E.)

vulpi'nus. L. Plant lemon-coloured, upright, very much branched, branches nearly of a length, angular, angles unequal. *Jacq. misc.* ii. 10. 4—*E. bot.* 2113—*Fl. dan.* 226—*Dill.* 13. 16.

Lemon-coloured, always upright. *Stems* at first smooth, cylindrical, almost orange; paler with age, pitted, compressed, at length rough with a yellow farinaceous powder. JACQ. Grows in clusters round the branches of trees, chiefly oak. Shrubby; branches divided and sub-divided, matted together in various directions, not more than 1 or 1½ inch long, cylindrical, thin, tender, soft in wet, rigid in dry seasons, paler or deeper yellow, terminating in short hair-like fibres. DILL. In winter it changes to a dull olive green. Mr. STACKHOUSE.

(*Brass-wire Lichen, L. flavicans.* ACHAR. prod. E. bot. E.) Trunks and branches of trees. In a wood four miles from Basingstoke on the road to Salisbury. Corsley Heath, Somersetshire. About Slingford, Sussex. In Deu Park near Horsham, and Eridge Park near Tunbridge. Near Totteridge not far from Barnet, Hertfordshire. DILL. On Dartmoor and elsewhere in Devonshire, and frequent in Somersetshire. HUDS.—[On apple and sycamore trees in Cornwall, frequent. Mr. STACKHOUSE.] P. Jan.---Dec.*

L. Saucers grey green, radiated: branches pendent, thread-shaped, waved, matted together. plica'tus.

Dill. 11. 1—*E. bot.* 257—*Matth.* 62—*Ger.* 1369, *and* 1156. 1—*Matth. a. C. B.* 65. 1—*Lob. obs.* 643. 2. 583, 1, *ic.* ii. 242. 1, *and* 155. 1—*Dod.* 471. 2—*Ger. em.* 1558 *and* 1339—*Park.* 1312. 1—*J. B.* i. 6. 88—*Trag.* 940, *on the right hand branch of the tree.*

Branches thread-like, not very thin, matted together, unequally divided into other branches, the slender divisions fibrous, rather stiff, grey. *Saucers* lateral and terminating, flat, or but little concave, thin, grey above, brownish underneath, without any proper border, but the edge fringed with radiating hairs. The old plants are covered with a rough, whitish, warty crust. DILL. The secondary smaller branches go off at right angles from the larger ones. The plant varies in colour from grey green to yellowish.

Tree Moss. Branches of trees in thick woods, but rare. Woodcote Wood, Hampshire. A wood near Northwim, Hertfordshire. [On old trees about Kendal, not unfrequent. Mr. GOUGH.] (This plant may be successfully applied to hemorrhages as an astringent styptic. Dr. SWEDIAUR. E.) P. Jan.—Dec.

L. Saucers pale yellow green, radiated, plant upright, branched. flo'ridus.

Dicks. h. s.—*E. bot.* 872—*Hoffm. lich.* 30. 2—*Col. ecphr.* 334. 3—*Park.* 1312. 3—*Ger.* 1372. 6—*Ger. em.* 1560. 5—*Park.* 1312. 2—*H. ox.* xv. 7. *row the last.* 14—*Happ.* ii. *Lichen* 3—*Dill.* 13. 13. *A*—*Mich.* 39. 5—*Kniph.* 6.

Grows very like a shrub. *Stem* very short, blackish. *Branches* wide-spreading, numerous, grey green. *Saucers* large, terminating, concave, smooth, fringed. DILL. Colour bluish green, the larger branches tawny, large for the size of the plant; smaller branches upright, cylindrical, thickly set with horizontal hair-like fibres. *Saucers* large, terminating, slightly concave, pale yellowish colour, sometimes an inch in diameter; border fringed with long radiating fibres, which sometimes also grow out of the under convex greenish side. HOFFM. (Dr. Smith suspects these radiated disks may be abortive flowers, and that the flesh-coloured rugged tubercles, sometimes found on the lateral branches, are the real fructification. *E. bot.* E.)

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* The Norwegians mix this plant with powdered glass, and strew it upon dead carcases to poison wolves. It dies woollens yellow.

Branches of trees, especially oaks. DILL. [Helewood near Plymouth. Mr. KNAPPE. On stumps of old pear trees, Herefordshire. Mr. STACKHOUSE.] (At Hafod, Cardiganshire. Dr. SMITH. E.) P. Jan.—Dec.

H. *Herbaceous.*

farina'ceus. L. Saucers mealy, on the edge of the foliage: leaves grey glaucous green, upright, compressed, branched.

E. bot. 889—*Vaill.* 20. 13. 14. 15—*Dill.* 23. 63, *A, B, C.* —*Walc. No.* 9.

Short and hair-like when young (A); broader when older (B); 1 to 3 inches high, compressed, segments sometimes fewer and broader (C), irregular, grey glaucous green, smooth, rigid. *Warts* on the edge of the branches, mealy, as is the whole plant, flat, or rising, resembling saucers. DILL. (Rarely found. In order to distinguish this plant from *L. calicaris*, of which it has been conceived by Dillenius, Scopoli and others to be only the other sex, Dr. Smith gives the following particulars in E. bot. *L. farinaceus*; form spreading, much branched tufts; its segments vary in breadth, though generally very narrow, acute, flattish, pitted, of a pale glaucous grey, smooth, except for the numerous irregular powdery cracks or warts on their edges or sides, which constitute the essential distinction of this species, and which in drying become almost white. The shields are flat, of a very pale buff, surrounded when young with an entire border of the colour of the leaf. E.)

Ragged Mealy Lichen. Trunks and branches of trees; whitest on the sloe. DILL. P. Jan.—Dec.*

Var. 2. Leaves broader. Mealy warts smaller, more frequent, so that the edges become curled. DILL. 173.

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* It appears from the experiments of Lord Monboddo and others that a mucilage which on drying becomes transparent, and possesses the properties of gum arabic, may be obtained from this and some other species of Lichen. E.

Dill. 23. 63. *D.*

Var. 3. Leaves broader, stiffer: Warts larger, less frequent. Dill. 173.

Dill. 23. 63. *E.*

See L. calicaris.

L. Saucers white, mealy, small; foliage grey white; leaves nearly straight, even, rather velvety, branched; segments spear-shaped. fucifor'mis.

E. bot. 728—*Dill.* 22. 61.

Leaves flat, thick, leather-like, rigid. Dill.

Found by M. Gosselin on rocks on the coast of Guernsey. Dicks. iii. 17. [and at King Arthur's Castle at Tintagel, Cornwall, by Dawson Turner, Esq.] (Mr. Foster subsequently searched the same spot, and found nothing but L. roccella; hence Mr. Turner infers that these two plants are only varieties of each other, and that our L. farinaceus is not the real Indian one, figured in Dillenius. *Bot. Guide.* E.)

L. Leaves yellow green, ascending, lobed, edged with a yellow curled and powdery border. Pinas'tri.

Hoffm. lich. 7. 1, *and enum.* 22. 2—*E. bot.* 2111.

Grows in small roundish patches: leaves $\frac{1}{2}$ an inch high, rather upright, lobed, the edges swollen. Surface often sprinkled with black dots, which under the microscope appear like fungous tubercles. No saucers have hitherto been found. Hoffman.

Golden Pine Lichen. On the bark of Scotch Fir trees. Dicks. iii. 18.

L. Saucers pale green grey; lateral and terminating: foliage pale grey green, upright, strap-shaped, branched, pitted, convex, ending in sharp points. calica'ris.

E. bot. 890—*Dill.* 23. 62—*Col. ecphr.* i. 334. 2—*H. ox.* xv. 7. *row the last,* 5—*Park.* 1312. 4—*Fl. dan.* 959. 1—*Walc. No.* 9—*Vaill.* 20. 6.

Dillenius does not think this specifically different from the *L. farinaceus*, and Mr. Relhan is of the same opinion. From 1 to 3 inches high, or more, variously branched. *Leaves* (or rather *stems*) convex on one side, hollow on the other, with shallow oblong pits on each side, smooth, rather shining and stiffish. *Saucers* small, lateral and terminating, concave, becoming flat, the same colour as the plant, viz. pale greenish grey. The tops of the branches end in hooked points, either upright or *horizontal*, which is peculiar to this species and readily distinguishes it. DILL. (Dr. Smith in contradistinction to *L. farinaceus* states this plant to be less soft and flexible, more yellowish, though sometimes becoming ash-coloured; branches broader, and though pitted, their surface smooth, almost shining, and always destitute of the powdery warts or cracks, so conspicuous in *L. farinaceus. Shields* copiously produced, each on a broad base, lateral, or most frequently nearly terminal, the pointed summit of the branch beyond them being more or less reflexed; when young they are concave, glaucous white, with a smooth acute margin; when older flat or convex, and pale buff. *E. bot.* E.)

Ragged Beaked Lichen. *L. fastigiatur.* ACHARIUS. E. bot. Rocks, and on the bark of trees. P. Jan.---Dec.

Var. 2. Tubercles hemispherical.

Plant simple greenish yellow white; solid, smooth; 1 or 1½ inch high. *Tubercles* yellow white; white within; terminating, though there is often a small branch sent out from the base of the tubercle, in nearly an horizontal direction. The plant though smooth to the touch is not without some minute rising eminences.

On a high Common at the Land's End, Cornwall. May.

trape'ziformis. L. Tubercles blackish, like dots in the substance of the plant, at length rising to the surface: leaf dark green, thickish, minute; the angles rounded.

E. bot. 595—*Hedw. stirp.* ii. 20. *A.*—*Mich.* 54. *ord.* 36. 3 —*Dill.* 30. 133.

L. endocarpon. Bot. Arr. Ed. iii. *Endocarpon pusillum.* Hedwig. On the ground on barren heaths near Croydon. [Crevices of rocks thinly covered with earth, King's Park, Edinburgh. Mr. BROWN.]

croca'tus. L. Saucers brown black, border like the leaf: foliage reddish yellow with yellow granulations: segments indented, rounded, pitted.

Dicks. h. s.—*Hoffm. lich.* 38. 1, 2, 3—*Dill.* 84. 12.

Foliage yellow and powdery at the edge. LINN. *Leaf* somewhat leathery, flat, somewhat wrinkled, divided into large segments, of different shades of yellow green, olive and reddish, within always bright yellow, of the same colour underneath, but covered with a blackish wool, with yellow dots interspersed. *Yellow balls* disposed along the edge and often over the whole surface in a chain-like or net-like manner. *Saucers* few, the border thick, formed by a swelling of the leaf. DICKS.

Rocks in the Highlands.

L. Saucers brown, white on the outside, on pedicles: foliage nearly white, quite white and cottony underneath; pitted, rather upright. prunas'tri.

E. bot. 859—*Dill.* 21. 55—*Vaill.* 20. 11—*Ger.* 1377. 1—*Kniph.* 12.

Leaves white; warts mealy. Saucers large, white on the outside, red brown within, on foot-stalks, on the edges of the leaves. Mr. RELHAN; who is now satisfied that his L. corniculatus is the same as the L. prunastri of Linnæus. From 1 to 3 inches long, sometimes mealy, sometimes not; leaves and segments broad, flat, like stags horns, pale bluish grey, hoary, or woolly underneath, by which and by its softness it is readily distinguishable from every other species. *Saucers* on plants which are shorter and less branched, fixed to the ends of the branches, rather paler and whiter than the leaves, brownish with age. DILL. *Saucers* grey white; reddish when old. WEIS. (It is very rarely found in fructification, but may easily be known without, by its soft and pliable texture, and diffuse much-branched form. *E. bot.* E.)

Trunks and branches of trees, on old willows it is softest, on blackthorn whitest. DILL. P. Jan.—Dec.*

Var. 2. Narrow-leaved.

Dill. 21. 54—*Vaill.* 20. 7.

Leaves tender, divided and sub-divided into narrow, oblong, horned segments, smooth but not shining, upper surface convex, under side hollow. DILL.

L. prunastri. (β Huds.) On dry half-decayed branches of Heath, on a moor 2 miles from Lippock, Hampshire. DILL.—Trunks of trees and on pales. [Grows common with the L. prunastri on trunks of trees. Staley bridge, near Manchester. Mr. BRADBURY.] P. Jan.—Dec.

L. Saucers brown, small: foliage pale and glaucous, depressed, lobed, smooth, curled and mealy at the edge. glau'cus.

Dill. 25. 96—*Jacq. coll.* iv. 19. 2—*Fl. dan.* 598—*Hoffm. enum.* 20. 1—*H. ox.* xv. 7. *row* 4. 4—*E. bot.* 1606.

Leaves thinner than paper, of a mixture of white, ash-colour, and sea-green. LINN. *Leaves* cut and curled like those

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* It has a remarkable property of imbibing and retaining odours, and is therefore the basis of many perfumed powders.

of Endive, smooth and shining on both sides, pale sea-green, brown underneath, substance black. Edges of the segments of the leaves mealy. *Saucers* small, brown. DILL.

Glaucous Leafy Lichen. On the ground amongst stones and rocks, and on heaths. On Emmot-moor near Coln, Lancashire; on Banstead Downs; near Moffat, and in Breadalbane.

P. Jan.—Dec.

fal'lax. L. Saucers red brown, terminating: foliage sea green, thin, jagged, white underneath, with black spots.

E. bot. 2373—*Dill.* 22. 58—*Hoffm. lich.* 46. 1, 2, 3—*Mich.* 37.

Differs from *L. glaucus*, for which it may be easily mistaken, as follows. *Segments* diffuse, not depressed, white underneath, never black or brown. *Saucers* terminating, not generally scattered over the surface of the leaves. DICKS. 13. *Leaves* several from the same centre, a finger's length, cut into a few segments, elegantly fringed and finely cut at the edge; fringe crisp, granulated; surface smooth, substance blackish. *Saucers* large, terminating, concave, wrinkled, reddish within. DILL.

Fallacious Leafy Lichen. Rocks in Devonshire.

Icelan'dicus. L. Saucers purplish brown, very large: leaves brown green, ascending, the edges raised and fringed.

Jacq. coll. iv. 8. 1—*E. bot.* 1330—*Dill.* 28. 111—*Hoffm. lich.* 9. 1—*Woodv.* 205—*Fl. dan.* 155—*Blackw.* 599—*Giseke* 50—*Mich.* 44. 4—*Buxb.* ii. 6. 1.

Saucers circular, very entire, placed on the leaf. LINN. Crowded, connected, ascending, varying greatly in shape and size. *Leaves* often several inches high, cut and divided, segments remote, extremities ending in two short, blunt horns. *Surface* smooth, shining, channeled, wrinkled, brown or pale green; edges turned in, fringed with stiff bristles. *Substance* membranaceous, soft, not easily torn; horny and stiff when dry. *Saucers* on the ends of the broader lobes, but seldom at the extremity of the plant or at the edges; very large, fringed, purplish brown. *Fringe* sometimes wanting. HOFFMAN.

Iceland Lichen. On the top of Snowdon and Clogwyn y Garnedd in North Wales, and only in small quantities. DILL. On many mountains in the Lowlands and Highlands, on the Pentland Hills, on Scrape near New Posso, on Craig-cailleach in Breadalbane. [Between Bwlch-las and the summit of Snowdon, but not in fruit. Generally attached to the Br. hypnoides. Mr. GRIFFITH.]*

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* The Icelanders boil it in broth, or dry it and make it into bread. They likewise make gruel of it to mix with milk; but the first decoction

Var. 2. Leaves narrower, the edges rolled in, the ends not fringed. Dill. 212.

Dill. 28. 112—*Buxb.* ii. 6. 2 ; 5, 3 and 4.

Pale green, whitish underneath. Segments slender, curled. This is the plant in its young state when growing under heath or other shrubs. Hoffman.

L. Saucers red brown, mostly on the edges of the foliage: leaves green, jagged, blunt, smooth; pitted; downy underneath. pulmonarius.

Hoffm. lich. 1. 2—*Gars.* 340—*Dill.* 29. 113—*Mich.* 45. *ord.* 14—*Fl. dan.* 1007—*Matth.* 1039—*Lob. obs.* 647. 2. *ic.* ii. 248. 1—*Dod.* 474. 1—*Ger. em.* 1565. 1—*Park.* 1315. 1—*Ger.* 1375. 1—*Matth. a C. B.* 733. H.—*Fuchs.* 637—*Trag.* 524—*Lon.* i. 219. 3—*H. ox.* xv. 7. *row* 4. 1. p. 634—*Blackw.* 335—*Neck. meth.* 1. 7, *a target.*

Targets grow upon the leaves. Linn. *fl. suec.* Flat, broad, loose, irregularly lobed ; lobes indented, about an inch broad, several inches long, cloven at the end, and lopped. Substance flexible, white and woolly within. Surface fine green, bluish when dried, brownish with age, spread over with an elevated net-work, with hollows in the interstices. *Warts* mealy, crowded on the edges of the leaf or on the rising edges of the net-work. *Saucers* in the hollows or at the edges of the leaves, facing horizontally, circular, 2-10ths of an inch diameter, often 2 or 3 together, brown red, or dark purplish. The plants with saucers are not very common, but are chiefly to be found on the higher branches of trees, in which situation also other Lichens, seldom yet found with saucers must be looked for, as the *caperatus*, *glaucus*, *saxatilis*, *&c.* Hoffman.

Lungwort. Hazel Rag, or *Hazel Crottles*, North of Ire-

is always thrown away, being apt to purge. It has lately gained a reputation for curing consumptive complaints, but is more unequivocally a restorative in diseases of exhaustion.

The jelly is certainly very nutritious, and may be dissolved either in water or milk. (The growth of this plant is not confined to the northern countries, but has recently been discovered in Spain and part of Italy. A Russian has lately obtained a patent for making bread of it, and M. Regnault of Paris recommends it to be taken in the form of jelly, by boiling six ounces of the Lichen in as many pints of spring water for an hour or more, then evaporating the decoction with the addition of six ounces of refined sugar, to the consistence of jelly. This is to be taken in the quantity of three or four ounces or more daily. However inadequate this remedy may be for actual organic disease, it has undoubtedly succeeded to a wonderful degree in restoring both old and young patients when extremely reduced by that less active form of phthisis, sometimes called a decline. E.)

land. *Rags*, Herefordshire. On the trunks of old trees, principally oaks, in shady woods. On heaps of stones in moist shady places. RAY. [Garn Dingle, Mr. GRIFFITH. On Oaks in the New Forest.] P. Jan.---Dec.*

cilia'ris. L. Saucers red brown, scolloped, on fruit-stalks: leaves somewhat upright, segments strap-shaped, fringed.

Dicks. h. s.—Hoffm. lich. 3. 4—*E. bot.* 1352—*Jacq. coll.*iv. 13. 1—*Fl. dan.* 711—*Vaill.* 20. 4—*Tourn.* 325. 2. *C—Walc.* 9—*Dill.* 20. 45—*Hedw. theor.* 30. *and* 31, 177, 178, 179, 180—*H. ox.* xv. 7. *row* 4. 6. *fig. next but one to the margin.—Coll.ecphr.* 1. 334. 3, *the uppermost fig.—Happ.* i. *Lich.* i.

Foliage strap-shaped, narrow, 1 or 2 inches long, variously cut into pointed segments, fringed with blackish or self-coloured hairs, so as to give a rough and almost prickly appearance to the plant. When wet good green above, sea green underneath, but whitish when dry; smooth. *Warts* of the same or a darker colour, numerous, often crowded. *Saucers* on the upper branches and on the stem, on short pedicles; dark brown to black; border the colour of the leaves. HOFFMAN.

Great Ciliated Lichen. On trees, in woods common.

Var. 2. *Warty.* Large, without saucers, but thickly set with small warts.

Dill. 20. 45. *B.*

Mr. Griffith favoured me with a specimen of this which he says he has watched for 10 years, and it remains the same, only encreasing in size. Branches and segments not unlike the horns of a deer, and velvety like the young horns. Warts dark reddish brown, very minute.

furfura'ceus. L. Saucers reddish brown: foliage greyish, prostrate, as if sprinkled with bran; segments acute; pitted and black underneath.

Hoffm. lich. 9. 2—*E. bot.* 984—*Buxb.* ii. 7. 1. *and* 2—*Dill.* 21. 52—*Mich.* 38. *ord.* 4. 1. *Barr.* 1277. 3.

Saucers the edges frequently bent back, making them appear convex. Mr. WOODWARD. I have never found a plant with saucers. WEIS. *p.* 66. LEYSER *n.* 1147. Mr. NEWBERRY. Plant expanding from a narrow base, more or less crowded and as-

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* It is reckoned very efficacious in consumptive cases: this opinion merits a further investigation. Woollen cloth boiled with it became of a durable orange. RUTTY. The people of Herefordshire dye their stockings with it of a durable brown. DILL.-(A mucilage which on drying, resembles gum arabic, may be obtained from this plant. E.)

cending: branches bent back, segments numerous, terminating in brownish-pointed horns. *Surface* greyish, rough, with a powdery substance, often greenish; wrinkled and blackish underneath. *Saucers* rarely seen, large, nearly hemispherical, brown red within, placed on the surface of the larger branches. HOFFMAN. *Leaves* often as if thorny at the edges, not rigid. DILL.

Branny Lichen. Trunks and branches of trees, and old pales. [Plentifully on Wild Tor-Rock, a large rock five miles from Chagford, Devonshire, and also on many of the smaller rocks of granite. Mr. NEWBERRY. In great quantity on the trees in Edgbaston Park, near Birmingham, but not in fruit.]

P. Jan.—Dec.

L. Saucers dark brown, nearly sitting: leaves grey green, segments blunt, nearly upright, fringed, the ends tubular when old. tenel'lus.

Hoffm. lich. 3. 2 *and* 3—*E. bot.* 1351—*Dill.* 20. 46—*Vaill.* 20. 5—*Mich.* 50. *ord.* 27 *and* 28.

Variously shaped, forming at first a small flat circle, segments slender, sub-divided at the ends, grey white, greenish when wet, more grey underneath. Surface sprinkled with minute black dots, edges hairy. Other parts of the leaves swelling at the end pour forth a greenish powder, the discharge of which leaves an open cavity in the substance. Saucers on short foot-stalks, rare, found on the plants with leaves hollow at the ends. They are circular, brown or blackish, surrounded with a border the colour of the plant. This species connects the *leafy* and *tiled* Lichens with the *leafy* and *upright*. Common on stones and trees; chiefly the Willow and Blackthorn. HOFFM.

Little Ciliated Lichen. On most trees, bushes, pales, and sometimes on stones.

L. Saucers pale brown, on pedicles: foliage greenish ash-colour; straight, oblong, spear-shaped, pitted, smooth, somewhat jagged. fraxin'eus.

Fl. dan. 1187—*Dill.* 22. 59—*Hoffm. lich.* 18. 1, 2—*E. bot.* 1781—*Tourn.* 325. *A, B.*—*Happ.* iii. *Lichen* 6—*Walc. No.* 9. *H. ox.* xv. 7. *row the last*, 3 *and* 4; *row* 3. 14—*Mich.* 36. 1.

From 1 to 6 inches high, varying in shape, wrinkled or meshed, with hollows on each side. Leaves of the younger plants, less wrinkled, shorter, spear-shaped. *Branches* but few, rising from one common stem, divided into several segments, terminating in pointed horns. Flexible when moist, more rigid and paler when dry. Colour on both sides glaucous, or pale ash, yellowish with age. *Saucers* very common, on every part of the plant, circular, concave, obtaining a pedicle from the substance of the leaf, pale brown or flesh-colour within. HOFFMAN. *Saucers* mostly of a pale straw-colour, but sometimes of the same colour with the leaf. *Leaf* greenish ash-colour, stiff.

Leafy Ash Lichen. Trunks of trees, on poplar, apple, &c. but chiefly on oak and ash. P. Jan.---Dec.

scopulo'rum. L. Tubercles pale brown, glossy, on short pedicles: foliage pale green, straight, flat, glossy, strap-shaped, a little jagged.

E. bot. 688—*Fl. dan.* 959. 2.

Not *L. scopulorum*, of Gmel. *syst. veg.* and Dill. 22. 60; for that is *L. fucoides*, not above an inch long, and has a velvety surface; this is 6 or 8 inches long, its surface quite smooth.

On rocks both in England and Scotland. DICKS. iii. 18.

Bur'gessii. L. Saucers brown, elevated; border green, leafy, curled: leaves somewhat tiled, curled, green.

E. bot. 300—*Lightf.* 26. 1. *at p.* 826—*Hoffm. enum.* 21. 1.

Leaves thin, pellucid, dull green, clustered together so as to form a thick cushion about as broad as the hand: smooth above, finely downy beneath, purplish brown when dry and the underside hoary. Dr. SMITH; who discovered this rare species about the Devil's bridge, at Hafod in Cardiganshire, on trunks of trees. See E. bot. p. 300.

It was first discovered on trunks of hazel and birch in Dumfrieshire, by the Rev. Dr. BURGESS of Kirkmichael.

P. Jan.—Dec.

glomulif'erus. L. Saucers tawny: leaves glaucous, even, creeping, bearing dark green branched, tufted excrescences.

E. bot. 293—*Mich.* 46—*Dill.* 26. 99—*Jacq. coll.* iii. 9. 2.

Lightfoot's description very good, but the young *saucers* have more the appearance at first of warts than tubercles, being merely risings in the substance of the leaves, with a small perforated point in the centre. As these swell, the edges recede and the disk is discovered. I have always seen the *shields* and *balls*, on the same plant, and if it be true that these and the shields are distinct parts of fructification, the glomerula must be male and not female, as Micheli, and after him Scopoli have supposed: as Hedwig has clearly proved the seed-vessels and seeds to be situate in the shield of such species as he has examined, from whence analogy will certainly point them out to be so in all. Mr. Woodward. Spreading in a circular form to a large size, greyish blue, smooth and even, rough underneath, and dirty white or brown, with numerous fibres. *Leaves* solid, tough, rather leathery, variously and elegantly cut. *Saucers* the size of a lentil, reddish, surrounded with a blue grey granulated border. Dill.

L. laciniatus. Huds. and Bot. arr. *ed.* ii. *L. quercifolius.* Jacq. coll. *L. laciniosus.* Gmel. *syst. veg.* On the road between Carno and Mayne Lloin. Dill. [On trees on the great Island in Winandermere, and in the woods at Corby Castle, Cumberland. Dr. J. E. Smith. On ash, sycamore, and oak, in the North West of Devonshire. Mr. Newberry. About Cenioge House between Llanrwst and Corwen; also between Llanrwst and Capel cerrig. Mr. Griffith.] P. Jan.—Dec.

L. Saucers tawny, edged with green: leaves bright green, bluntly lobed and scolloped; underneath whitish, downy, veinless. læte-vi´rens.

Hoffm. lich. i. 10. 2—*Fl. dan.* 1124—*E. bot.* 294—*Dill.* 25. 98—*H. ox.* xv. 7. *row* 4. 3.

Large as one's hand, leaves tiled, roundish, variously cut, broad, blunt, scolloped. *Substance* flexible, soft and herbaceous when moist, but rather tough. *Surface* even, of a pleasant green, deeper colour when dry, and changing to grey, glaucous, or brown. Underneath wrinkled, brown, whitish towards the margin, fibrous. *Saucers* numerous: large, mostly towards the central parts of the plant, red brown. On stones as well as on trunks and roots of trees. Hoffm.

L. herbaceus. Huds. &c. On ash trees in Ireland, on stones at Coomb Floyd near Bishop's Castle, and on oaks between Carno and Mayne Lloin in Merionethshire. What seems to be a variety of it near Wakehurst, Sussex. Dill. Near Ivy Bridge, Devonshire, and in Yorkshire and Cumberland. Huds. —and Scotland, not uncommon. Lightf. [On trees between Kendal and Bowness, and in many other parts of Westmoreland. Dr. J. E. Smith. On ash, sycamore, and oak in the North West part of Devonshire. Mr. Newberry.] P. Jan.—Dec.

L. Saucers red brown: foliage pale green, wrinkled, waved at the edge, creeping. capera´tus.

Dill. 25. 97—*Hoffm. lich.* 38. 1; 39. 1; 42. 1—*Jacq. coll.* iv. 20. 1—*Hoffm. enum.* 19. 2, *and* 20. 2—*E. bot.* 654 —*Mich.* 48. 1—*H. ox.* xv. 7. *row* 4, 1.

Not very leafy, sea green yellow. *Saucers* seldom found.

LINN. Circular in its growth, from 1 inch to 1 foot in diameter, the small ones like a rose, the larger ones less regular. *Leaves* oblong, cut, terminating segments broadest, yellow, glaucous green; surface not pitted, but marked with oblong or oblique unequal wrinkles, as well on the leaves as on the central crust. *Saucers* on the larger plants, either pale flesh-colour, or the same colour as the leaves. The whole plant sometimes mealy and bearing mealy warts. DILL.

On stones, rocks, trees, pales. Jan.—Dec.*

scrobicula'-tus. L. Saucers tawny, very minute: warts mealy: foliage dull grey green, depressed, roundish, pitted, slightly lobed and scolloped.

E. bot. 497—*Hoffm. lich.* 1. 1—*Dill.* 29. 114—*Mich.* 49. *ord.* 21—*Jacq. coll.* iv. 18. 2.

Leaves broad, flat, variously lobed. *Lobes* indented; segments rounded, blunt, sometimes scolloped. Substance not very thick, flexible. Upper side sea-green, greyish in the hollows, grey or whitish when dry, yellowish when old; every part pitted or hollowed. *Warts* mealy, on the borders of the pits, the edge of the leaf or the end of the lobes, solitary, scattered or crowded, the size of a pin's head, brownish with age, often perforated. *Saucers* rarely to be found, seated in the hollows, concave, border entire, brownish, centre yellowish or reddish brown. HOFFM. *Saucers* hemispherical, hollow, yellowish, tawny at the bottom. HUDS. Segments broad, blunt, moderately thick, rather stiff, with circular hollows, blue grey. *Saucers* mealy, granulated, partly on the leaves, partly on their edges. DILL.

Lichen verrucosus. Huds. *L. verrucarius.* Gmel. *syst. veg.* Trunks and roots of trees, on large stones, and at the foot of rocks. Among the pebbles at Cockbush on the coast of Sussex. RAND.—On large stones near Dolgelle, Merionethshire. DILL. On rocks just above Great Malvern, Worcestershire. ST. [Near Keswick, Cumberland. Dr. J. E. SMITH. On ash, sycamore, and oak in the N. W. of Devonshire. Frequently growing on the same trunk with *L. herbaceous, lacinatus,* and *nigrescens.* Mr. NEWBERRY. Garn Dingle, and woods about Garthewin, Denbighshire. Mr. GRIFFITH.] P. Jan. Dec.

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* The people in the north of Ireland and Isle of Man, dye wool with it of an orange-colour. Serge dyed with it became of a lemon-colour, but if previously infused and boiled in urine, of a russet brown. It is probably what the people in the north of Ireland call *Stone-crottles,* and which there and in the Isle of Man, is used to dye wool of an orange-colour. It is also called *Arcell,* from the resemblance it has to the *Orchal* in its use in dying. RUTTY.

L. Saucers brown red, bordered: leaves lead-coloured, plum'beus.
bluntly lobed; blue and spongy underneath.

Dicks. h. s.—E. bot. 353—*Lightf.* 26, *at p.* 826—*Hoffm. enum.* 21. 2—*Dill.* 24. 73—*Mich.* 43, *ord.* 23. 1.

Leaves, the edges and woolliness on the under-surface blue. HUDS. *Leaves* when dry ash-coloured or yellowish white, and in long preservation the blue spongy hairs turn white: they frequently extend beyond the edge of the leaves. *Shields* brownish red, small, scolloped when old, their brims of the colour of the leaves. LIGHTF.

L. cærulescens. Huds. p. 531. Trunks of trees. Near Pentir and Bangor. DILL. About Bradford, Yorkshire. About Drumlanrig, and in Barntimpenn Linn, about five miles from Moffat. Dr. BURGESS *in Fl. Scot.* [On the great island in Winandermere. Dr. J. E. SMITH. On trunks of oak, ash, and elm, Devonshire, very common. Mr. NEWBERRY. Garn Dingle, and about Llanrwst, common. Mr. GRIFFITH.]

P. Jan.—Dec.

L. Saucers dark brown red; foliage black green, mem- saturni'nus.
branaceous, lobes rounded, woolly and ash-coloured
underneath.

E. bot. 1980—*Dicks.* 6. 8.

Leaf depressed, somewhat plaited, slightly wrinkled above, of a bluish or brownish blackish hue, very woolly underneath. *Saucers* scattered, reddish or brown; border of the same colour. DICKS.

Saturnine gelatinous Lichen. Trunks of trees, Scotland. [At Craigy Hall, near Edinburgh. Mr. BROWN.]

L. Saucers pale flesh-colour, terminating; foliage white, niva'lis.
ascending, jagged, curled, pitted, smooth: the
edges raised.

E. bot. 1994—*Fl. dan.* 227—*Fl. lapp.* 11. 1—*Dill.* 21. 56.

Rarely found in fruit. Linnæus describes the saucers as mentioned above, but they are not expressed in his figure, nor in that of the Fl. danica. Dillenius examined great quantities of this Lichen, and found only minute dots like tubercles on the extreme edges of the segments, of a light reddish colour. These may be the rudiments of the saucers mentioned by Linnæus.

Snow Lichen. Rocks in Scotland. On Ben Lawers. Dicks. iii. 17. [On many mountains near Invercauld, not uncommon. Mr. BROWN.]

Endivifo′lius. L. Tubercles reddish, on the edge of the leaves: foliage yellow green, whitish underneath, twisted and curled.

E. bot. 2361—*Mich.* 42. 3.

Barren heaths in Surry, and in Scotland; growing on the ground. Dicks. iii. 17.

ampulla′ceus. L. Saucers dark purple within, globular, inflated: foliage rather flat, lobed, scolloped.

Dill. 24. 82—*Jacq. coll.* 1. 4. 3. *c.*—*Hoffm. lich.* 13. 2.

Segments, broad, short, finely scolloped, smooth on both sides, brownish, or purplish black. *Saucers* at the base or at the edge of the leaves, very large, not hairy, like an inflated bladder perforated at the top, wrinkled, greyish, within dark purple. Dill.

This very singular plant does not seem to have been found since the time of Dillenius. The only known specimen was in his Herbarium at Oxford, but by something like slight of hand, it was transported to Germany, where it was purchased by Professor Jacquin, and in whose possession it was seen by the late Dr. Sibthorpe, to whom it was restored by the Professor, so that it may now be seen again in the Herbarium. It was drawn under Jacquin's direction, and this drawing has been copied by Hoffman.

On Emot Pasture near Coln, Lancashire. Richardson, who sent a specimen of it to Dillenius. P. Sept.—Nov. Huds.

tenuis′simus. L. Saucers dirty red, sunk in the leaf, border broad, foliage brownish green, tiled, finger-like, with many clefts.

E. bot. 1427—*Dicks.* 2. 8.

Minute, and elegant. *Leaves* minute, brown when dry, of a tender membranaceous jelly-like substance, with many clefts at the ends; segments strap-shaped, unequal, expanding, somewhat fringed. *Saucers* proportionally large, with imperfect borders, the younger hollow, pitcher-shaped, on the surface of the leaves and of the same colour, the older flat, sometimes convex, of a dirty red. Dicks.

Fine-cut gelatinous Lichen. Parmelia tenuissima. Achar. [On sand-banks, near Norwich. On dry sand banks usually amongst moss. Norfolk, not unfrequent. Woodward.]

membrana′ceus. L. Saucers pale yellow: foliage brimstone colour, mealy, plaited and wrinkled, depressed.

Dicks. 6. 1.

Leaf membranaceous, very thin, widely spread out, growing closely to the ground, whitish, covered with a thin yellowish mealiness, black underneath. *Saucers* few, minute. DICKS.

On rocks thinly covered with soil in the Highlands of Scotland.

L. Saucers reddish yellow: foliage yellow, leaves minute, upright, crowded, curled. concolor.

E. bot. 1794—*Dicks.* 9. 8.

Saucers few, scattered, slightly concave. *Leaves* 1 or 2 lines long, paler yellow when young, darker with age.

On trees, and on old wood. DICKS. iii. 18.

Mr. Griffith is satisfied that this plant is nothing but the intermediate state between the L. candelarius and parietinus, which he believes are the same species.

(*L. candelarius.* LINN. ACHAR. Prod. E. bot. *L. concolor.* well named so by Dicks.—Also of HULL. ABBOT. E.)

I. *Root central.*

L. Tubercles black: foliage blue black, roundish, plaited, curled, smooth; brown and pimpled underneath. Jacquini.

Jacq. misc. ii. 9. 3.

Black underneath. DICKS. *Leaves* thin, tough, leathery, circular, fixed to a central root, pimpled, lobed, curled. *Tubercles* like targets, roundish, protuberating, sitting, marked with serpentine or concentric lines. JACQ. misc. ii. 83.

L. pullus. Dicks. 1. and Bot. arr. *ed.* ii. Rocks on the mountains of Scotland.

L. Tubercles black: foliage brown black, wrinkled, reticulated and fibrous underneath. torrefactus.

Hoffm. lich. 2. 1. 2—*E. bot.* 2066—*Dill.* 30. 118—*Fl. dan.* 471. 3.

Plant expanded, circular, 2 or 3 inches over; thick, rigid, brittle when dry; edge indented, segments short, irregularly scolloped, and ragged. Surface black, brownish towards the centre, texture like leather, rough, tubercles black semi-globular grains. Under side smooth, grey brown, reticulated with veins, no root but in the centre. HOFFMAN. *Targets* black, oval, like protuberating warts, wrinkled, DILL. or rather marked with nearly concentric lines.

When Lichens consist of only 1 leaf, they must appear different from those that are complicated, but unless they invariably are so, or differ in some more material respect, there can be no good reason for considering them distinct. I have seen such repeated instances of the imbricated Lichens being found with a single leaf, and the umbellicated Lichens with many leaves, and those so complicated that they may well be said to be imbricated, that I am convinced nature is not limited by any such considerations. On these grounds I am decidedly of opinion that *L. pullus* of Dickson, and *L. deustus* of Hudson are the same plant, and neither of them other than the *L. torrefactus* of Lightfoot, consisting of one leaf. Mr. GRIFFITH.

(*Corroded Lichen. L. erosus.* ACHAR. prod. *Gyrophora erosa.* ACHAR. Method. E. bot. E.)

L. polyrrhizos. Huds. Found in the same places with *L. corneus.* DILL. On rocks and stones. On St. Vincent's rocks, near Bristol. HUDS. About Llanberris. Mr. DAVIES *in Fl. Angl.* On the Highland Rocks frequent. LIGHTF. [On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY.] P. Jan.—Dec.

deus'tus. L. Tubercles black: foliage grey brown, smooth on both sides.

Vaill. 21. 14—*Jacq. coll.* iii. 1. 3.

So brittle, that unless when moist, it cannot be separated from the rocks without being torn. LINN.

Dr. Smith thinks that the plant of Dillenius, 30. 117, is the L. polyrrhizos, and that Vaillant's figure represents the true L. deustus of Linnæus. See Smith's tour, i. 104. but read Dill. tab. 30, instead of 20. It seems to be very like the less tiled and leafy specimens of the L. miniatus, except in the colour of the tubercles. Mr. Griffith is of opinion that the L. Deustus and L. proboscideus are the same plant, the former with a single leaf, the latter either single or complicated, and has favoured me with the sight of an instructive set of specimens which seem fully to support this idea. See his observations under L. torrefactus.

anthra'cinus. L. Foliage black brown, smooth on both surfaces; edge lobed, rounded.

Jacq. misc. ii. 9. 4.

Root single; central. *Foliage* leather-like, but thin and silky; brown black, naked and smooth on both surfaces; in shape like a lettuce; towards the edge plaited and curled. WULFEN in Jacq. misc.

On rocks in Scotland. DICKS. iii. 19.

L. Tubercles black, small: foliage ash-coloured, bluntly lobed, soft, pliable, thick, underneath brown black, roughish. Dille'nii.

Dill. 30. 117.

Root single, short, like stone. *Leaf* circular, 1 to 1½ inch diameter, bluntly lobed, leather-like, thick, pliable, soft to the touch on the upper side, neither polished nor hairy, ash-coloured; underneath more or less rough, and grey, brown, or blackish. *Tubercles* small, black, a little raised above the leaf. Dill. This had been considered the same as the L. deustus of Linnæus, but that species is brittle and smooth on both sides.

St. Vincent's Rocks near Bristol. Dare. in Dill.—About Llanberris. Mr. Davies. P. Jan.---Dec.

L. Tubercles black, numerous: foliage grey, consisting of several leaves with an even surface on both sides, but with numerous black fibres underneath. polyrrhi'zos.

Hoffm. lich. 2. 3 *and* 4—*E. bot.* 931—*Hall. enum.* 2. 4, at *p.* 91; *hist.* 47. 4, *at* iii. *p.* 88—*Dill.* 30. 130, *and* 82. 5, *a very large plant*—*Fl. dan.* 597. 1.

Foliage more rigid and more upright than in the L. polyphyllus, the edge less regularly scolloped, more black underneath, and thick set with short black tendrils. In other respects resembling that, and has like that dots upon the leaves, but more distinct. Dill. Plant circular, expanded, thick, some inches over, edge curled, irregularly nicked and scolloped. Surface wrinkled or plaited, grey white, sprinkled with minute dots, sometimes cracked, sometimes powdery, sometimes smooth. Under side very black, closely set with short forked tendrils; root central. Hoffman. *Fructifications* numerous, black, and as Dillenius describes them, "surrounded with a margin and tubercled in the centre." Mr. Relhan, Besides the black fibres underneath, it has a *central* root, which being broken off leaves the bare place figured by Hoffman.

This last author doubts whether this be the plant of Linnæus, but I think without much reason. Dr. Smith says that L. polyrrhizos and L. velleus are one and the same plant.

(*Fleecy Lichen. L. pellitus.* Achar. E.) *L. velleus.* Huds. In the same places with *L. polyphillus.* Dill. On rocks in the Highlands, Lightf. and Lowlands. Dr. Burgess. Clark's park and paradise near Money Musk, Aberdeenshire. [Carnedd Llewellyn, near the summit. On the top of a high hill called Moel Shabod near Capel Cerrig; Caernarvonshire.

Mr. Griffith. (We find in E. bot. that this plant has also been observed in the counties of York and Durham. E.)

pustula'tus. L. Saucers black, flattish: foliage grey brown, consisting of a single leaf, circular, slightly lobed, sprinkled with a black bran-like powder; pitted underneath.

Hoffm. lich. 28. 1. 2-29. 4—*E. bot.* 1283—*Dill.* 30. 131 —*Fl. dan.* 597. 2—*Mich.* 47—*Vaill.* 20. 9.

Root single, central, of a stony consistence. *Leaf* single, concave, circular, 2 to 5 inches over, thin, membranaceous, lobes broad, shallow, deeper in the old plant, covered with numerous pustules, round or oblong, hollow, opening under the leaf. Plant when wet brown green at the edge, leaden grey in the centre, dirty yellow to blackish underneath. Substance white. Dill. *Saucers* very rare, only found on the very largest plants, amongst the pustules, circular, black, flattish: border thin, of the same colour. Plant flexible when wet, brittle when dry. Hoffm.

Blistered Lichen. On rocks with a south exposure under Keven Lees Castle, Radnorshire, and on a large mass of rock on the right of the road from Penmorvay to Dolbelmen, Caernarvonshire. Dill. Near Halifax, Yorkshire. Bolt. *in Huds.*—in Scotland. Lightf.—[Malvern Hills, Worcestershire. St.] P. Jan.---Dec.*

probosci-de'us. L. Tubercles black, perforated: foliage dull grey green, lobes fringed.

Hoffm. lich. 44. 1. 9—*E. bot.* 522—*Hedw. stirp.* ii. 1. *A* —*Jacq. misc.* ii. 9. 2—*Dill.* 29. 116.—*Fl. dan.* 471—*Hall. hist.* 47. 4.

Leaves an inch diameter, roundish, circular, unequally and bluntly lobed at the edge, with a root from the centre, smooth, underneath here and there throwing out a fibrous root, above flattish, or somewhat twisted, ash-coloured, roughened with brown elevated points. *Targets* scattered over the surface, black, very small, pierced with a pore down to the leaf, with a broad flat edge. Linn. Flat, extending every way from a central root. Deeply divided into lobes; irregular and curled at the edge. Hedwig. *Root* stony. *Leaves* not more than an inch long; loose, broad, concave, segments fringed, smooth on both sides, not shining, when wet, pellucid like horn, dull grey green. DILL. *Targets* sitting, or on pedicles, convex, often marked with concentric circular lines. JACQ.

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* A beautiful red colour may be prepared from it. Linn.---And it may be converted into an exceeding black paint.

L. crinitus. LIGHTF. On the rocks called Llyn Llydaw, and near Llyn Cwm y Ffynnon lâs; also on the tops of the mountains from Cwm Brwynog, towards Ardhu, near Llanberris; and on the highest rocks of Berwyn mountain, Derbyshire. DILL. On rocks in the mountainous parts of Dartmoor, Devonshire, rare. Mr. NEWBERRY. Summit of Carnedd Llewellin. Mr. GRIFFITH. Common in the Highlands. Mr. BROWN.] P. Jan.—Dec.

Var. 2. Foliage complicated.
Specimen from J. W. GRIFFITH, Esq.

L. Tubercles black, very minute: foliage greenish black, composed of several leaves, even on both sides, scolloped. polyphyl'lus.

E. bot. 1282—*Dill.* 30. 129.

Leaves growing from a single stony root, lying in a circle, piled, inner ones the smallest, thin, smooth on both sides, neatly scolloped, russet brown above, darker underneath. DILL.

Many-leaved Smooth Lichen. On rocks and stones. On Snowdon, at Llyn Llydaw rocks, about Llyn Cwm y Ffynnon lâs, and on the tops of the mountain Cwm Brwynog towards Ardhu, near Llanberris, Caernarvonshire. DILL. Rocks on the Highland mountains. LIGHTF. [ST.] (In fructification near Newcastle, by Mr. THORNHILL. E. bot. E.)

L. Tubercles red, small, globular, immersed in the substance of the leaf; foliage pale yellow brown, tough, leather-like, tawny underneath. minia'tus.

E. bot. 593—*Jacq. coll.* ii. 16. 1, *and* iii. 2. 4—*Jacq. misc.* ii. 10. 3—*Bolt.* 131. C—*Dill.* 30. 127—*Hall. enum.* 2. 2. *at p.* 91, *hist.* 47. 2, *at* iii. *p.* 88—*Fl. dan.* 532. 1—*Mich.* 54. *ord.* 36. 1.

Leathery, thick, tough, strong; firmly fixed to rocks by a central root, irregular in shape, generally lobed, colour that of coffee with plenty of cream added to it; apparently scaly on the surface, but they are small brown dots, turning blackish, underneath ochrey red. Shrinks and twists much in drying. JACQUIN. *Leaves* many together, outer ones by far the largest, waved at the edge. Inner leaves crowded, edges turned down and indented so as to have a wrinkled or curled appearance. DILL. *Dots* of the colour of red lead. Mr. WOODWARD. The red dots are gelatinous tubercles. Mr. GRIFFITH.

On rocks and large stones. [A rock at Ilam, Derbyshire, is covered with it for several yards. Mr. **Woodward.** In a tower of Denbigh Castle, above the Goblin Well, also on Garreg-wen rocks, near Garn. Mr. **Griffith.**]

P. Jan.—Dec.

amphib′ius. L. Leaves covered with numerous minute dots; bright green, changing to dusky olive; coiled up like hollow cylinders.

Fl. dan. 532. 2—*Mich.* 54. *ord.* 36. 1.

This plant in its first state consists of a number of fine tender membranaceous pellucid green leaves, waved with margins which are elevated and bluntly indented. These leaves soon acquire a firmer texture, become opake, the upper surface changes to a bright green, and the under to a buff-colour; lastly they turn to a dusky olive; the elevated margins are bent back, and the leaves are coiled like hollow cylinders, and covered with numerous minute dots, which are the only fructification hitherto observed. When moist it has a peculiar smell, not very unlike that of fresh peeled oak bark. Mr. **Griffith.**

L. miniatus, var. *β*. Lightf. Huds. and Bot. arr. *ed.* ii. [On rocks at Ilam, Derbyshire, mixed with L. miniatus. **Woodw.** On stones near the lake called Llyn Idwell, Caernarvonsh. and on many of the stones under the water in the lake. Mr. **Griffith.**]

aquat′icus. L. Tubercles brown, small, globular, immersed in the substance of the leaf: foliage brownish green, lobes blunt, tiled, puckered and corrugated; underneath reddish brown, deeply pitted and strongly veined.

E. bot. 594—*Hoffm. lich.* 45—*Dill.* 30. 128—*Weber.* 4.

Dull dark green above, and smooth. Ash-coloured, clouded, wrinkled and pitted when dry. Sprinkled with brown wart-like dots, in clusters. Saucers rarely found, few, circular, sitting, reddish brown, border thick, the colour of the leaf. It has an urinous smell. **Hoffm.** The saucers mentioned and figured by Hoffman, seem to be only the tubercles in their most expanded state of growth.

L. *fluviatilis*. Bot. arr. ed. iii. *Platisma aquaticum*. Hoffm. *lich.* ii. p. 69. *Lichen aquaticus*. Weis; *Crypt.* p. 77. L. *fluviatilis*, Huds. *and* Weber. *spicileg.* p. 265. The fig. of Dill. has been cited as the var. of L. miniatus. On stones in rivulets. Near Perfeddgoed House, Bangor; and at Funnon Comb y Goff, Radnorsh. **Dill.** musc. p. 225. [Found by Mr. Griffith on stones, often under water in Llyn Idwell, Caernarvonshire, who favoured me with specimens, observing that though by most authors made a var. of L. miniatus, he thinks it perfectly distinct.]

K. *Foliage* LEATHER-LIKE.

L. Tubercles white, mealy, lateral: plant whitish, hoary, porous, much branched; branches in bundles, cylindrical; subdivisions awl-shaped, bluntish, short, nearly of the same height. fucoi'des.

Dill. 22. 60.

Has much affinity with L. *fuciformis*, in its tough leather-like texture, but it is distinguishable by many marks. Dillenius's figure was taken from imperfect specimens. DICKS. Narrow at the base, branching, branches the breadth of a straw, 1 to 2 inches long, greyish. *Tubercles* small, flat, mealy, on the edges and sometimes on the surface of the leaves, whiter than the rest of the plant. DILL. Barren segments acute; the fruit-bearing blunt. *Saucers* concave when young, when old convex, shining, on short pedicles. RETZ.

L. *scopulorum*, Retz. iv. 103, and Gmel. *syst. veg.* Rocks in the Island of Jersey. DILL.—On rocks and wood on the sea shore near Gosport. DICKS.

L. Saucers blackish, sunk in deep pits in the leaf: foliage fine pale green, creeping, circular. sacca'tus.

E. bot. 288—*Mich.* 52. *ord.* 31—*Fl. dan.* 532. 3—*Dill.* 30. 121.

Readily distinguishable from its having in place of a target a sack hanging down from the lower surface. LINN. *Leaves* at first disposed in a circular figure, but little cut, when older divided into bluntly scolloped lobes, thin, tender, smooth, fine glaucous green. *Roots* from the under surface, fibrous. *Targets* in the hollow sack in the leaf. DILL.

Chedder rocks not far from a subterranean river. On Snowdon, at the rocks of Llyn Cwn y Ffynnon Velen, and about Clogwyn y Garnedh. DILL.—[About the mouth of Yordas Cave, near Ingleborough Hill. Dr. J. E. SMITH.—Garreg-wen-rocks near Garn, Denbighsh. Crib y Ddescil, Caernarvon. Mr. GRIFFITH.]

L. Tubercles brown, on the surface of the leaf; foliage greyish green, flat, creeping, circular, veined and saffron coloured underneath. cro'ceus.

E. bot. 498—*Hoffm. lich.* 42. 4, 5, *and* 41. 2. 4—*Jacq. coll.* iv. 11. 2. 3—*Linn. lapp.* 11. 3—*Dill.* 30. 120—*Fl. dan.* 263.

Leaves nearly flat, lying on the ground, roundish, narrower towards the base, about an inch over, cut at the edge, lobes blunt, sometimes entire, scolloped, 3 or 4 leaves forming a circle, but not regular, colour grey green, deep yellow underneath, which circumstance alone is sufficient to distinguish it. *Targets* flat, brown, few, 1 to 2 lines diameter. LINN. *in* DILL.

On a rock near the top of Benteskerney, Breadalbane. Mr. STUART *in Fl. Scot.* [On the very summit of Ben Lawers. Mr. BROWN. On Ben Glow in Athol. Mr. DON.]

P. Jan.—Dec.

perla'tus. L. Saucers brown, somewhat scolloped, on fruitstalks: foliage grey green, creeping, lobed, smooth, mealy at the edge; black underneath.

E. bot. 341—*Jacq. coll.* iv. 10—*Dill.* 20. 39—*Vaill.* 21. 12—*Mich.* 50. *ord.* 24. 1—*Barr.* 1278. 3.

I have examined thousands of plants without finding one with *saucers*. Mr. WOODWARD. Blue grey, pitted, fringed. *Saucers* large, glass-shaped, on short pedicles, brown and smooth within; border when old, cracked. Very common, particularly about Oxford, on the trunks of oaks, but seldom found with saucers. DILL.

Trunks of trees and stones. [Scarce in Norfolk, but extremely common in Hertfordshire, particularly on the smooth bark of Beech, on which it grows with great regularity and beauty. Mr. WOODWARD.] P. Jan.—Dec.

cani'nus. L. Tubercles reddish brown, oblong, terminating, foliage ash-coloured, mealy, creeping, lobes blunt, woolly and veined underneath.

Blackw. 336—*Jacq. coll.* iv. 14. 1.—*E. bot.* 2299.—*Dill.* 27. 102.—*Woodv.* 274—*H. ox.* xv. 7, *row* 2. 1—*Fl. dan.* 767. 2—*Vaill.* 21. 16.

Targets brown, underneath smooth and flesh-coloured. LINN. *Leaves* covered with a kind of ash-coloured mealiness. Grows on the ground. *Leaves* a span long, 1 or 2 inches broad, widening as they grow out, lobes short, blunt, single, or in strata, membranaceous, grey dull dirty green; woolly and veined underneath, roots white fibres. *Targets* terminating, hard, solid, oblong, but rounded, tawny, reddish brown. DILL.

Ash-coloured ground Liver-wort. Woods, heaths, stony places, and hedges. P. Jan.---Dec.

polydac'tylos. L. Tubercles red brown, egg-shaped, terminating, on pedicles: foliage dull green, smooth, flat, lobed; divisions finger-like; underneath woolly and veined.

Jacq. coll. 14. 2—*Hoffman lich.* 4. 1—*Dill.* 28. 107.

Growing in tufts, divided into lobes 1 or 1½ inch in length, broadest at the end, the extreme lobes ending in numerous convoluted red brown finger-shaped targets, seated on pedicles. Surface smooth, dull green, changing to greyish or red brown when dry. Underneath veinous, downy, brownish. HOFFMAN.

L. *caninus.* γ. Huds. &c. About Perfeddgoed House not far from Bangor, Wales. DILL.

Var. 2. Shorter, thinner, more variegated.

Dill. 28. 108.

Veiny and woolly underneath. DILL. 207. Shorter, thinner, whiter underneath, more transparent and more variegated in its colours than the preceding. HOFFMAN.

L. *caninus.* δ Huds. &c. On Rumbles Mear, near Helwick, Yorkshire. DILL.

L. Tubercles and saucers purplish brown, horizontal, terminating: foliage dirty dull green, egg-shaped, flat; veined and woolly underneath. veno´sus.

Dicks. h. s.—*Dill.* 28. 109—*Hoffm. lich.* 6. 2—*E. bot.* 887—*Fl. dan.* 1125. 1—*Mich.* 44. 3. 5—*Dill.* 28. 110.

At first small, circular, flat on the ground; when older raised up; 1 or 1½ inch over, oblong or egg-shaped, border divided into a few segments, but irregularly and obliquely. Surface greenish, grey or brown when dry; white and brown, variegated underneath, with large veins, thick, woolly, brown, dividing at the extremities. *Root* at the base of the leaf, wedge-shaped, short. *Targets* at the end of the lobes, sitting, concave or convex, circular, horizontal, dark brown purple. HOFFMAN.

Green Veiny Lichen. Moist rocks under shady brows in several parts of Glenkill Linn, and Glenkill Burn, in the parish of Kirkmichael, Dumfriesshire. Dr. BURGESS *in Fl. Scot.* 844. Moistish stones and rocks about Dunkeld, Scotland. (Found by Dr. Babbington close to the town of Ludlow. *E. bot.* E.) P. Jan.—Dec.

L. Tubercles purple, or red brown, terminating: foliage green, changing to brown, sprinkled with warts, lobes blunt, not veined underneath. aptho´sus.

Hoffm. lich. 6. 1—*E. bot.* 1119—*Dill.* 28. 106—*Fl. dan.* 767. 1—*Jacq. coll.* iv. 17.

Broader, shorter, thinner, and less brittle than the *L. caninus.* Segments large, flattish, bluntly notched. Surface smooth, fine green when young, grey brown when old. *Warts* numerous, scattered, blackish. *Tubercles* terminating, fine purple, or red brown, egg-shaped, crooked, warty, on short pedicles. Roots very long. HOFFMAN. Black brown underneath, woolly, not veined, whitening when exposed to the air; without radical fibres. DILL. Seldom found in this country.

Thrush Lichen. Shady, stony, mossy places, and on rocks. Dartmoor, Devonshire. Ingleborough, Yorkshire; elsewhere in Yorkshire and Westmoreland. HUDS. At the foot of the Pentland Hills, Scotland. Mr. YALDEN *in the Fl. Scot.* 847. P. Jan.—Dec.*

rufes'cens. L. Tubercles reddish brown, terminating: foliage dull green, deeply lobed; lobes blunt, the edges bent inwards, underneath woolly and with black fibres.

Jacq. coll. iv. 15—*E. bot.* 2300—*Dill.* 27. 103—*Mich.* 44. *ord.* 12. 2.

Leaves thicker, stiffer, smaller, narrower, and deeper cut than in the L. caninus; the edges curled, the colour darker, not veined underneath, or very superficially so. DILL. In the same place with L. caninus, and more common. DILL. 204. *L. caninus* var. β Huds. &c.

Dark-coloured Ground Lichen.

fuligino'sus L. Saucers rust coloured, flat, borders pale: foliage grey green, creeping, indented, lobed, rough underneath, pitted, and covered with a spongy down.

E. bot. 1103—*Dill.* 26. 100.

Ash-coloured sea-green, tinged of a lurid colour, yellowish underneath, with white hollows. DICKS. 13. *Leaves* soft, tender, wrinkled and pitted above, and strewed with a sooty-like powder; woolly and spongy underneath, with here and there a white hollow, but no fibrous roots. *Saucers* few, small flat, rust-coloured, with a thin pale border. DILL.

Sooty-leafed Lichen. Growing always upon moss, and not directly attached to the substance on which it appears to grow. At the foot of Mount Cader Idris, near Dolgelle, in August. DILL. [In woods on the branches of trees. DICKS. On trees near Ambleside. Dr. J. E. SMITH. On Crib y Ddescil. Mr. GRIFFITH.] (Rookwood Grove, Boconnoc, Cornwall. Mr. E. FORSTER. E.)

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* The country people make an infusion of it in milk, and give it to children that have the Thrush. In large doses it operates by purging and vomiting, and destroys worms.

L. Saucers rust-coloured, large, facing downwards: foliage brown green, creeping, lobed. resupina'tus.

Dill. 28. 105—*E. bot.* 305—*Fl. dan.* 764—*Mich.* 44. *ord.* 13. 2—*Jacq. coll.* iv. 12. 1.

Readily distinguishable from *L. caninus* from the targets arising from the side of the leaf next the ground, and their being smaller. LINN. Substance thin. Lobes bluntly scolloped, brown lead-colour, grey and whitish underneath, neither woolly nor fibrous. *Targets* numerous, varying in size, rust-coloured, fixed to the lower side of the leaf. DILL.

Trunks of trees, rocks, stones, on pebbles on the sea shore, and on the ground in stony places. [Garn Dingle. Mr. GRIFFITH.] P. Jan.—Dec.

Var. 2. Substance yellow when broken.

This variety was found by Mr. Griffith on dry rocks about Garthewin, who observes that it only differs from the preceding in its yellow colour when broken.

L. Tubercles reddish, at the edge of the leaves; foliage grey green, creeping; lobes many-cleft, curled, naked and veinless underneath. scuta'tus.

Jacq. coll. iv. 18. 1—*E. bot.* 1834.

(*Target-fruited Leathery Lichen. L. Collinus.* ACHAR. prod. E.) *Leaves* leather-like, tough; lobes curled like endive. JACQ. On the bark of trees in Scotland. DICKS. iii. 18.

L. Tubercles brown red, oblong, small, terminating: foliage dull brown green, warty, creeping, pitted, jagged. sylva'ticus.

Dill. 27. 101—*Hoffm. lich.* 4. 2—*Jacq. coll.* iv. 12. 2—*E. bot.* 2298—*Mich.* 43. *ord.* 11, *too broad, the ends of some represented as fringed.*

Large, lying on the ground, margin raised, irregularly divided into segments, which are lopped and angular at the ends. Surface dull brown green, red brown when old and dry, blackish at the ends, pitted, rough in the rising parts with minute black warts. Underneath spongy and woolly. Substance tough, flexible, greenish or dirty white. *Targets* few, at the end of the narrowest segments, small; oblong, or roundish, brown red. Hoffman.

Wood Pitted Lichen. In shady woods at the roots of trees. In the wood called Enfield Chase, near Southgate, Middlesex, near Dolgelle, Merionethshire, Lucton Vallet, Herefordshire. Dill. Glen Eawood and other places about Kirkmichael, Dumfriesshire. Burgess *in Fl. Scot.* P. Jan.—Dec.

Var. 2. Above of a fine green, the edges a little curled, and powdered with a bright yellow meal. Mr. Newberry.

[On ash, sycamore, and oak in the North West of Devonsh. Mr. Newberry.]

horizonta'lis. L. Tubercles tawny red, horizontal, terminating: foliage brown green, flat, creeping, edges white; underneath brown, not veined.

Jacq.coll. iv. 16—*E. bot.* 888—*Dill.* 28. 104—*Mich.* 44.*ord.* 12. 1 *and* 6—*Fl. dan.* 533 *a distorted and* 765 *a decaying specimen.*

Leaves variously divided into lobes, thin, not rigid, dull brownish green, brown underneath, but white at the edge, fibrous roots blackish. *Targets* egg-shaped, flat, on the edge of the leaves, yellow red. Dill. (*Shields* generally solitary, placed on little elongations of the front, horizontal, flat, roundish, red-brown, surrounded with a crenate border of the colour of the leaf on which they grow. *E. bot.* E.)

Brown horizontal Lichen. Enfield Forest. Dill. Moist rocks and stones, and at the roots of trees. Huds. P. Jan.—Dec.

L. *Gelatinous.*

Tremel'la. L. Saucers red brown, numerous, minute: leaves dark green, somewhat transparent, curled, slender, jagged.

Dill. 19. 31—*Jacq. coll.* iii. 11. 1—*E. bot.* 1982—*H.ox.* xv. 7. *row* 3. 4—*Mich.* 38. *ord.* 3; *too large.*

So brittle that it can scarcely be separated from the plants to which it adheres. Linn. When dry becoming of a slate-colour. *Saucers* very minute; numerous, reddish. Lightf. *Saucers* of the size of turnip-seeds, circular: border sea-green, nearly entire; the disc flat, tawny. Huds. Adhering to moss and fine grass on heaths. *Leaves* ½ to 1 inch, flattish, variously cut into segments, fringed and curled at the edges; thin, pellucid, glaucous brown green. Dill.

Jagged Gelatinous Lichen. Tremella Lichenoides. Linn.

(*L. lacer*. E. bot. *L. lacerus*. ACHAR. prod. *L. tremelloides*. HUDS. LIGHTF. RELH. E.) Shady places on stones and trunks of trees, intermixed with Mosses. [On moist shady banks and thatched houses frequent, but seldom with saucers. Mr. NEWBERRY. Garn Dingle. Mr. GRIFFITH.] P. Jan.—Dec.

Var. 2. LIGHTF. *Dill.* 19. 32.

More blue than the preceding, less jagged, but the divisions deeper, bearing small tubercles of a flesh or reddish brown colour. DILL.

Var. 3. LIGHTF. *Dill.* 19. 34.

Saucers extremely numerous, sitting on the sides of the leaves, scarcely distinguishable by the naked eye, reddish; borders regular, of the same colour with the leaf. Mr. WOODWARD. Grows densely crowded, but rather upright; the outer leaves less so, thin at the ends, larger than the central ones, deep green with a purplish cast; segments broadish, thin, flat, rather gelatinous, the ends very finely scolloped. DILL.

Footscray Wood, Kent. [Sandy banks, but not commonly found with saucers. Mr. WOODWARD.]

Var. 4. LIGHTF. *Dill.* 19. 35.

In little dense tufts, upright, rather gelatinous, darker than the preceding, almost black. *Leaves* very short, very fine, segments capillary. DILL.

Footscray Wood and Darking. [Summit of Carnedd Llewelyn: Mr. GRIFFITH, who doubts whether it be not more properly a Byssus. Much more branched than the Byssus nigra. Dill. 1. 18.]

L. Saucers chesnut colour, mostly terminating: foliage brown chesnut: leaves tiled, smooth, jagged, ascending. sepin′cola.

Hoffm. enum. 17. 1—*Hedw. stirp.* ii. 2.

Tough and gelatinous when moist, brittle when dry; paler underneath; white within. HEDWIG.

Mountains in Scotland, on stones. DICKS. iii. 18.

L. Saucers tawny, concave: leaves dark green, tiled, roundish, scolloped, roughish. granula′tus

E. bot. 1757—*Fl. dan.* 462. 1—*Dill.* 19. 24—*Jacq. coll.* iii. 10. 2.

Grows in a circular form. *Leaves* variously jagged, lobes blunt, ear-shaped in the middle part, with numerous fleshy shining globules in the hollow part, of the colour and substance of the leaves. DILL.

(*Granulated Gelatinous Lichen. L. furvus.* ACHAR. Prod. E.) Closely adhering to the gravel and pebbles of the walks of Oxford Physic Garden. DILL. [On a wall near Kirkby Lonsdale. Dr. J. E. SMITH. Garregwen rocks. Mr. GRIFFITH.] P. Jan.—Dec.

cochlea'tus. L. Saucers brown red: foliage dark green, membranaceous, plaited, lobed.

Dicks. 2. 9.

Leaves concave, the edge bluntly lobed, plaited when dry, between ash and lead-coloured, when moist dark green. Differs from *L. Vespertilio* in the edges of the leaves being elevated and concave, in being of an ash-lead colour when dry, the saucers being larger and not crowded. DICKS. The young saucers have a border of the colour of the leaves, and are sunk into the foliage. The plant has the gelatinous texture of the L. granulatus, and is not distinct from it. The L. granulatus varies without end: when it grows on moss it is a very large thick-leaved gelatinous plant. I have found specimens 4 or 5 inches in diameter and 1-10th of an inch thick. In this state it bears only shining fleshy globules, as described by Dillenius, which are the rudiments of young plants, and when separated from the mother plant take root, and being removed into a flower pot placed in a moist place they become perfect plants. Mr. GRIFFITH.

Woods at the roots of trees, Devonshire: Mr. SLATER. Yorkshire. Mr. CURTIS. [About Garn very common. Mr. GRIFFITH.]

palma'tus. L. Saucers tawny: foliage purplish sea-green, pellucid, rather gelatinous, tender, somewhat hand-shaped and scolloped.

E. bot. 1635—*Dill.* 19. 30—*Vaill.* 21. 15.

Grows closely crowded and tiled. *Leaves* very tender, pellucid, rather gelatinous, very much cut, segments ending in 2, 3, or 4 horn-shaped teeth, dull brown, or purplish green, convex above, concave underneath. DILL. Black and very brittle when dry. Dillenius has neither figured nor described the saucers, nor have I seen any plant in fruit. The colour of the saucers is therefore mentioned upon the authority of Hudson, but Mr. Griffith thinks that his plant was only a crowded variety of L. cristatus with palmated leaves, not uncommon in North Wales.

Palmate Gelatinous Lichen. Heaths and trunks of trees among moss. A. Sept.—June.

L. Saucers tawny red, crowded, wrinkled: leaves blackish green, roundish, lobed, wrinkled. nigres'cens.

Dicks. h. s.—*E. bot.* 345—*Fl. dan.* 1125. 2—*Hoffm. lich.* 37. 2. 3—*Dill.* 19. 20—*Jacq. coll.* iii. 10. 3—*Buxb.* 1. 61.3.

Leaves jelly-like, expanded in a circle, resembling a bat's wing; sometimes destitute of saucers, and covered with numerous small tubercles: lobes very blunt. *Saucers* near the centre of the leaves. LIGHTF. *Leaves* broad, flat, between scolloped and lobed, in substance as well as colour much resembling a bat's wing, sometimes covered, in the place of saucers, with granulations of the same colour as the leaf. *Saucers* very numerous, minute, at first appearing like tubercles, of the same colour with the leaves, with a slight hollow at the top; afterwards expanding, and at length flat border of the same colour with the leaf. The progress from tubercles to saucers shews that there exists no absolute distinction between them. MR. WOODWARD.

L. Vespertilio. Lightf. 840. Trunks of trees, rocks, stones and walls. [In two or three places near Bungay, in fruit, on old willows and elms. MR. WOODWARD. About the bodies of old oak, ash, and sycamore trees near Holsworthy, Devonshire, abundantly with innumerable shields. MR. NEWBERRY.]
A. Oct.---June.

L. Saucers red, larger than the leaves: leaves tiled, fringed with teeth. crista'tus.

Dill. 19. 26—*Jacq. coll.* iii. 12. 1.

Leaves, their crested appearance best observed in the young plants. *Saucers* sometimes very large and confluent. MR. WOODWARD. *Leaves* glaucous green, crowded, tiled, thick, flat, cut at the edges into many shallow segments. *Saucers* at the base of the leaves, very broad, scarcely concave, brown or reddish brown in the centre, border the colour of the leaves. DILL.

Rocks, stones, walls, and shady stony places. [On the ground. MR. WOODWARD. Near Garn. MR. GRIFFITH.] A. Oct.—July.

L. Saucers fine green, brown when dry, very small: foliage fine sea green, pellucid, somewhat gelatinous, rounded, indented, scolloped. sinua'tus.

E. bot. 772—*Dill.* 19. 33.

Much crowded in its growth. *Leaves* short, broadish, flat, spreading, thin, pellucid, somewhat gelatinous, cut into segments, finely scolloped at the ends; outer leaves the largest. *Saucers* small, fine sea-green like the leaves, more conspicuous in the dry plant because changing to brown. Dill. Saucers on the disk of the leaves; borders blunt. Mr. Griffith.

Rocks, stony and shady places. Near Wigmore, Herefordsh. and Ashburton, Devonshire. [On the rock at Dumbarton Castle, Scotland. Dr. J. E. Smith. On a stone wall at Chagford, Devonshire, between the town and parsonage, but without shields. Mr. Newberry. Rocks about Garn, common. Mr. Griffith.] A. Sept.—July.

fascicula'ris. L. Saucers dirty green and concave when young, reddish and turban-shaped when old; terminating: leaves black green, hand-shaped, nearly upright.

E. bot. 1162—*Fl. dan.* 462. 2—*Jacq. coll.* iii. 11. 2—*Dill.* 19. 27.

Root-leaves minute, and like the whole of the plant of a glossy jelly-like appearance, resembling a Tremella. *Tubercles* in clusters, large in proportion to the leaf, numerous, mostly on fruit-stalks, lopped at the end, surrounded with a blunt border. Linn. Observable in October and November, forming roundish raised substances, with numerous tubercles rising from fleshy leaves interlaced and connected. *Leaves* examined separately, pellucid, dirty green, not ¼ of an inch long. *Tubercles* at first small, convex, the colour of the leaves; when larger, flat, or a little hollowed. Dill.

Clustered Gelatinous Lichen. Woods and garden walks. Dill. Trunks of trees and stones. Huds. Shady places on the north side of trees, particularly ash. Dr. Burgess. [Ash trees in bleak situations, about Nant Glyn. Denbighshire. Mr. Griffith.] (About Ambleside, Westmoreland, Dr. Smith. County of Durham. E.)

Dillenius remarks that it exists at all seasons of the year, but dries up like a Tremella so as only to be found in wet weather.

cris'pus. L. Saucers blackish green, changing to red brown; scolloped: leaves tiled, lobed, lopped, scolloped.

Dill. 19. 23—*Jacq. coll.* iii. 10. 1—*E. bot.* 834.

Distinguishable from *L. cristatus* by its being more curled and less jelly-like, the lobes of the leaves being round, blunt, and not divided as in *L. cristatus*. Mr. Woodward. *Leaves* dark green, rather thick, divided into broad shallow lobes, innermost leaves smallest, curled. Lobes blunt, scolloped in the summer, hardly perceptibly so in the spring. *Saucers* dark green, lying flat on the leaves; border granulated. Dill.

Shady places on stones and at the bottom of walls.

L. Tubercles blackish green, roundish: foliage dark green, gelatinous; lobes oblong, thick, blunt. rupes′tris.

Dill. 19. 22.

Gelatinous, dark green, somewhat transparent, prostrate, wide-spreading, rather slippery, without roots, but adhering to the soil. Tubercles roundish, gelatinous, dark green. Blackish and shrinking when dry, so as hardly to be found, but swelling again when wet. Jacquin. Gelatinous, brown green: rigid. Segments lobed, blunt, oblong, thick, surface not wrinkled. Tubercles rare, dull brown green, globular or flat; in the extremities, or on the disc. Dill. *L. submarginalis*, Jac. coll. iii. 132.

Marston near Oxford.

L. Saucers globular, hollowed at the top, blackish green: foliage blackish, gelatinous, convex, lobed, somewhat scolloped. fluviat′ilis.

E. bot. 2039—*Dill.* 19. 28.

Fix by the centre. *Leaves* or shoots variously divided, convex above, concave below, the ends with small indentations; hardish, gelatinous and pellucid when viewed against the light, dirty green, black above when dry and grey underneath. The leaves are proliferous, but not jointed. Dill. Not *L. fluviatilis.* Gmel. *syst. veg.*

River Gelatinous Lichen. On stones under water in Alpine rivulets. In a stream coming out of Malham Cove, Yorkshire, and in the rivulets on Snowdon. Dill. [On stones in the river Elwy, about half way from the ford opposite the cave to Pont-newydd, four miles from Denbigh. Have but lately found it in fruit. Mr. Griffith. On stones under water in the River Isla, Angus-shire. Mr. Brown.] P. Jan.—Dec.

TREMEL′LA: *Substance* gelatinous, transparent, uniform, lobed.

Seeds dispersed through the jelly-like substance.

Obs. It differs from the *Gelatinous* Lichens in having neither Tubercles nor Saucers.

Tr. Whitish; sitting, jelly-like, of various shapes. Huds. 565. al′bida.

Bull. 386—*E. bot.* 2117.

Sometimes with a tinge of sea-green, and yellowish, somewhat wrinkled, solid, semi-transparent. Huds.

On the half rotten, fallen branches of trees, in thick woods, and on moss. A. Sept.—May.

Al'lii. Tr. Grey; white within; sitting, membranaceous, labyrinth-like. Dicks. 14.

Act. nov. Holm. dan. p. 286. *f.* 1.

Becomes hard when dry. Dicks.
On rotten roots of *Allium Cepa; A. fistulosum*, &c.

adna'ta. Tr. Livid; round, tiled.

Adheres closely by its whole substance to rocks; has the appearance of the Agarics which grow on trees, but is nearly membranaceous. Linn. *suec. n.* 1143.

Rocks and stones on the sea-shore at low water. P. Jan.—Dec.

arbo'rea. Tr. Black brown; sitting, roundish, waved. Huds.

Bull. 420—*Dill.* 10. 15—*Hoffm. crypt.* 1. 8. 1—*Jacq. coll.* iii. 12. 2—*Fl. dan.* 885. 3.

When fresh nearly transparent, with a blackish hue, which increases as it decays. It is very much wrinkled; the wrinkles when in a state of perfection fringed with fine whitish hairs. Mr. Woodw. A membranaceous gelatinous substance, dull brown or reddish black, quite black when dry. Flat underneath; above raised irregularly into veins, and set with black tubercle-like dots. Dill. 54.—Waved and plaited, thick, pulpy, jelly-like after rains, never membranaceous; destitute of hairs. Hall. hist. 2038.

Var. 2. *fusca.* Semi-transparent, brown.

Bull. 406. B.

The plant occupies an irregular circular form, from 1 to 2 inches diameter. Substance like a stiff jelly of a dirty brown colour, divided down to the root. Lobes waved, plaited, 3-10ths of an inch broad, about 1-20th of an inch in thickness. When soaked in water it gives out freely to the water a colour like that of the deepest Madeira wine.

On the broken branch of a Hornbeam, on the pool dam, Edgbaston Park. 26th June, 1792.

Witches Butter. Trunks of trees. [Common on fallen wood and dead sticks, in woods. Mr. Woodward.] A. May. Sept.—Jan.

sarcoi'des. Tr. Red purple, either lobed, plaited and curled; or hemispherical, or club-shaped, or approaching to funnel-shaped.

Bolt. 101. 2—*Schæff.* 323 *and* 324—*Jacq. misc.* ii. 22—*Batsch.* 53.

Grows in clusters. *Stem* sometimes very distinct, ¼ of an inch high, supporting a kind of convex pileus 3-8ths of an inch in diameter, with a dimple in the centre. Whole plant of a fine reddish purple; gelatinous and semi-transparent.

On rotten wood. Nov.—April.

Tr. Dark pinky red: gelatinous, stiff; globular but compressed: surface roughish. cinnabari'na.

Bull. 455. 2.

Very small, growing in clusters, otherwise a single plant would hardly be distinguished by the naked eye. First mentioned as a native by Mr. Relhan, who found it on Hinton Moor, growing on mosses and other herbaceous plants. Bulliard says, it particularly affects to grow upon the Hypnum sericeum.

Tr. Tawny, velvet-like, irregularly tooth-shaped. Sabi'næ.

Schmid. 66—*Hoffm.crypt.* 1. 7. 2—*E. bot.* 710.—*Mich.* 88. 5—*Gled.* 1. *Clavaria f.* 6.

Growing in clusters. Substance when fresh, jelly-like, strap-shaped, lopped, more than an inch long. Dicks. An inch high, orange-coloured or tawny, gelatinous, pulpy, in clusters, simple, awl-shaped, but compressed, rather pyramidal, or with 2 horns; sometimes with blunt teeth at the sides. When dried leathery but brittle, opake, darker coloured, recovering its former appearance when soaked in water. *Seeds* an orange-coloured dust which it throws out as it dries. Jacq. coll. ii. 174.

T. juniperina according to Web. 277, but it does not accord with the description in the Fl. lapp. Dicks.

On *living* branches of Savine.

In a rainy season abundant on Savine bushes in the garden at the Larches.

Var. 2. Of a deeper orange colour, firmer substance, and more regular dog-tooth shape than the above. This variety is undoubtedly the *T. juniperina* of Linnæus. I found it growing plentifully on the *living* main stem of the Juniperus communis in the same wet season as the above. Dr. Smith in E. bot. justly observes, that most parasitical cryptogamous plants are found either upon totally dead trunks or branches, which is the case with Fungi or Tremellæ in general; or they are rooted, like the crustaceous Lichens, in decayed external layers of the bark. On the contrary, the *T. Sabinæ* and *T. juniperina* spring from the *live* wood, under the bark of vigorous branches. From these circumstances Dr. Smith infers these plants "to be mere gummy exudations, and that the powdery surface was owing to resinous particles, insoluble in water, accompanying them." But I have been so fortunate as to find both these kinds of Tremella in perfection at the same time, have proved them to be totally insoluble in water, and that their substance is no more of a gummy nature than that of many other of the same Genus, particularly the T. mesenterica.

Common on the Junipers at the Larches. April.

deliques'-cens. TR. Deliquescent: yellow, changing to orange red; sitting, lobed: lobes few, blunt.

Bull. 455. 3.

In clusters; each plant about 1-10th of an inch over.
On timber. Nov.—Feb.

mesenter'-ica. TR. Golden yellow: sitting: twisted into manifold plaits.

E. bot. 709—*Bull.* 406—*Hoffm. crypt.* 1. 7. 3—*Sterb.* 26, *the four figures in the right lower corner*—*Vaill.* 14. 4—*Schæff.* 168. 1, 2, 3—*Jacq. misc.* 1. 13.

On the dead branches of trees. Gelatinous, tremulous, pellucid, smeared with a viscid moisture: white when young, changing to yellow. Horny when dry; growing in irregular patches. JACQ. Golden yellow, changing to tawny when old; variously plaited and wreathed. SCHÆFFER. iv. p. 108.

T. juniperina. Huds. 562, according to Mr. Dickson, p. 14. —not the T. junip. of Linn. Mr. WOODWARD.

On the *Common Juniper*, *Ulex Europæus*, and *Spartium scoparium.* A. Sept.—May. HUDS.
On rotten wood. Autumn. DICKS.

ferrugin'ea. TR. Sessile, clustered, lobed, waved, of a rusty brown; the surface finely pubescent.

E. bot. 1452.

Substance gelatinous, pliable, tender, becoming thin, shrivelled, and shapeless when dry; reviving, though imperfectly, on a re-application of moisture. Segments obtuse, lobed and waved, but not so plaited or sinuous as those of *T. mesenterica;* neither is the surface, as in that, smooth, but finely granulated; the granulations pale, giving the plant a velvet-like gloss, with brown irregular specks, perhaps fructification, among them. Internal substance white. *E. bot.*

Plaited rusty Tremella. This new species was discovered by Mr. CROWE, growing on dead wood in wet weather, in winter, at Lakenham, near Norwich. E.)

Nos'toc. TR. Olive coloured; plaited and waved.

Bull. 174, *and* 184—*Hoffm. crypt.* 1. 8. 3—*E. bot.* 461—*Dill.* 10. 14—*Mich.* 67, 1—*Fl. Dan.* 885. 1—*Gars.* 393. C.

Greenish or yellowish. Sub-gelatinous, consisting of several leaves variously lobed and waved, slightly adhering to the ground by a central root; the substance very thin. It varies in colour, but is usually some shade of olive. Mr. Woodward. Thin, skinny, dark brown and brittle when dry. Dill. Micheli describes the seeds as lying in the form of little strings of beads coiled up within the folds of the plant, and only to be discovered by the microscope. The dark green sort consists of an olive-coloured transparent jelly between two coats, which are more opake and approach to blackness. The outer surface of these coats is studded with conical papillæ, which probably contain the seeds.—It is supposed by the country people to be the remains of a meteor or falling star. It has lately been asserted that this is of animal origin, but without sufficient reason. After very severe frost, I have frequently found a gelatinous substance, which from a careless observation might pass for a Tremella, but it is the remains of frozen frogs. This substance does not shrivel up in dry weather as the Tremella does, nor is it plaited and waived; and generally some of the bones of the frog may be found in it. After the severe winter of 1789, I found great quantities of these on the edges, and in the water of ponds.

Star-slough. Meadows and pastures after rain, and gravel walks. [Frequently on gravel, Mr. Woodward. Found amongst grass, at the bottom of the Rookery, Edgbaston, by Miss C. Withering, who could not discover any thing like a root.]

A. Jan.—Dec.

Tr. Green, spherical, clustered, containing a fluid. *E.bot.* granula'ta.
E. bot. 324—*Fl. dan.* 705—*Dill.* 10. 17.

From a greenish mucilaginous ground, of no determinate figure, arise little heads, crowded together, green, at first sitting, but when older supported on short pedicles. These heads are globular, hollow, filled with a watery fluid. When this fluid is wasted by the heat of the sun, or lost by the bursting of the heads, the top of the globe subsides, and seems hollow, or as if cut off. Skin of the heads thin, shining, when ripe changing to grey and then to whitish. Dill. 55.

Sides of the ditches and in dried up ditches between Newington and Hackney. Dill. About Charlton, Kent. Huds. Near the edges of ponds and ditches on the road to Histon, Cambridgeshire. Relh. *suppl.* 1. 26. *n.* 1033. A. Oct.—May.

(Tr. Sessile, clustered, twisted, tumid, brown, shining, intumes'-
gelatinous: when dry, thin and membranous. *E.bot.* cens.
E. bot. 1870.

In perfection in wet weather only.

On a beech in St. Leonard's Forest, Sussex. Mr. W. Borrer. Jan.—E.)

utriculat′a. Tr. Green, sitting, tubercled; tubercles hollow.

Hoffm. crypt. 1. 8. 2—*Dill.* 10. 16—*Mich.* 67. 2.

Spreading widely over rocks and stones under water, green, stiffish, brittle, ½ to 2 inches thick, rather shining, sometimes smooth. *Tubercles* hollow within, from the size of a pea to that of a hazle nut. Huds. *n.* 6. Dull green, variously folded in the central part, dilating when immersed in water into various hollow bags. Dill. 54.

On stones and rivulets about Pentir and Llanberris. Dill. Mountainous rivulets in Westmoreland and Cumberland. Near Tideswick, Derbyshire. P. Jan.—Dec.

cris′pa. Tr. Dark green, tender, curled; growing on the ground.

Dill. 10. 12.

Very thin; of a fine green colour. Expanded on, and slightly adhering to the earth, but without any apparent roots. Dill. 52.

Ulva Lactuca, γ Huds. 567. *Ulva crispa.* Lightf. 972; and Bot. arr. *ed.* ii. Ray *Syn.* p. 64. *n.* 12.

At the bottom of walls and houses, in moist shady places. Nov.—Feb.

verruco′sa. Tr. Bright green, tubercled, solid; wrinkled.

Very tender bright green. Huds. Jelly-like, dull green forming a membrane composed of 2 lamina, variously contorted. Tubercles minute roundish grains, united together. Gmelin. fuc. 227.

On stones in clear brooks and springs. P. Jan.—Dec.

hemisphæ′rica. Tr. Bright green, hemispherical; scattered.

Wieg. obs. 2. 3.

This usually vegetates with a very small, but hard spherical excrescence; and varies in size from the minutest point to that of a small vetch. It sometimes covers the rocks to a considerable extent. At very low water in *spring tides*, and upon those submarine rocks which, at that period only, are exposed to air, I have very frequently found this plant (as I conceive it to be) in an inflated state, quite globular and more than an inch in diameter. It is then of a most beautiful transparent green colour: it afterwards collapses and dries into a hard sinuated crust, not hemispherical, but of the same colour and texture as the Tremella, and indeed the edges of it are often times rounded in a manner exactly similar to the plant described. These are found in small masses of the Tremella, growing promiscuously therewith. Major Velley. Consists of granules fixed to the stones without any order; globular, but flatted on the under side, so that they may be considered as hemispherical; from ½ to 1½ line in diameter; slippery, gelatinous but tough, so as not to be easily broken by pressing between the fingers. WEIG. obs. p. 39.

Only upon rocks; never upon Fuci or Confervas. Mr. STACKHOUSE. P. Jan.—Dec.

TR. Dull green; roundish; indented, of various forms, jelly-like. diffor'mis.

Very nearly allied to *T. verrucosa*, but is soft and grows on Confervas. LINN. *suec. n.* 1140.

On Confervas and Fuci growing on submarine rocks. [I have always found it adhering to the bare rock. Mr. STACKH.]

TR. Violet-coloured; wrinkled, smooth underneath. viola'cea. RAY *in Syn.* 22. *n.* 4.

Bull. 499. 5.

Very much resembling the tartar of red wine. RELH. Between leathery and gelatinous, variously wrinkled and contorted, flat and smooth underneath. Colour dull violet. RAY. p. 22. n. 4. Helvella mesenterica. DICKS. p. 20.

Seems rather to belong to the *Helvellas*. RELH. *suppl.* i. 39.

Decayed branches of trees. [On rails, after much rain, in December.]

TR. Violet-coloured, lobed; surface furrowed. amethys'tea.

Bolt. 101. 2—*Schæff.* 323 *and* 324—*Jacq. misc.* ii. 22—*Bull.* 499. 5—*Batsch.* 53.

Gelatinous; generally growing in clusters. *Stem* very short, solid, varying much in shape, purplish; sometimes none. *Pileus* purple, variable, hemispherical, or funnel-shaped, or like a flower; lobed, or plaited, or curled. SCHÆFFER. *Stem* sometimes ¼ of an inch high, and very distinct. Upper part convex, with or without a dimple in the centre. Substance of a fine reddish purple, gelatinous and semi-transparent.

Helvella sarcoides. Dicks. *Elvela purpurea.* Schæff. *Lichen sarcoides.* Jacq. On rotten wood. Nov.—Feb.

FU'CUS. *Fructification* consisting of CAPSULE-LIKE globules, or of GRANULATIONS within the substance of the plant, with a perforation above them.

OBS. Our knowledge of the fructification of the plants assembled under the genus Fucus, is not yet sufficient to enable us to improve the Essential Character, though confessedly imperfect. The genus at present consists of a collection of marine plants, some of which approach in their habit and jointed structure to the Confervas, still more of them resemble the membranaceous or gelatinous Ulvas, whilst the strong and leather-like sorts are sufficiently distinct from either. From what I have seen myself, and from the discoveries of Major Velley and Mr. Stackhouse, I begin to believe that the leather-like Fuci will form two distinct Genera, and that the others must be divided into three more at least.

(There is reason to hope, that the very learned botanist, Mr. Turner, has already undertaken to extricate the confused genera of Marine Algæ, and to form them into a more perspicuous arrangement. E.)

SUBDIVISIONS OF FUCUS.

A. With BLADDERS.

B. Leaves POD-LIKE.

C. Jointed; NECKLACE-LIKE.

D. (1) Flat; midribbed; *opake.*
(2) Flat; midribbed; *pellucid.*

E. (1) Flat; ribless; *opake.*
(2) Flat; ribless; *pellucid.*

F. (1) Cylindrical; *opake.*
(2) Cylindrical; *pellucid.*

G. (1) Capillary; *opake.*
(2) Capillary; *pellucid.*

There can be little doubt of the Fuci being the food of various kinds of fishes. They are indiscriminately used as manure by the farmers on the sea-coast. The stalk of the F. *esculentus* may be eaten, as may also the F. *saccharinus* when boiled; but the more crisp and tender leaves of the Fucus *lanceolatus*, *holosetaceus*, and *pinnatifidus*, are used as a sallad. The Fucus *vesiculosus* and *serratus* are collected on many of our northern shores, and burnt to make Kelp.

A. *With* BLADDERS.

nodo'sus. F. Compressed: forked: leafits pointing two ways; very entire: air bladders in the substance of the leaf, solitary; distended.

Turn. hist. 91—*Stackh.* ii. 10—*E. bot.* 570—*Fl. dan.* 146—*Baster.* 11. 5—*Dod.* 480. 1—*Ger. em.* 1568. 6—*Park.*

1293.6, *the left hand lower figure*—*Gmel.* 1. B. 1—*H. ox.* xv. 8. *row.* 3. 2.

Bladders egg-shaped, growing in the middle of the branches, broader than the branches. *Leafits* spear-shaped, blunt, from the edges of the leaf. LINN. Hard, leathery, 6 feet long, yellowish when fresh, blackish when dry. *Stem* variously branched, flat, about ½ inch broad. Trailing, entire or winged, or alternately winged and forked towards the ends. *Leaves* simple, in pairs, several from the same fork of the branch, none towards the bottom of the stem. *Leaf-stalks* very short. The thicker leaves contain granulated fructifications in a mucus fluid. *Air-vessels* both on the stem and on the leaves, large, elliptical, hollow. GMELIN fuc. 79. The inside of the fruit is perfectly analogous to that of F. vesiculosus. Mr. STACKHOUSE.

The forked terminations of the air-bladders contain seeds and jointed fibres mixed with mucilage, but these cannot be observed without a microscope.

Rocks and stones in the sea. P. May—Oct.

Var. 2. Stem serrated. LIGHTF. 920.

Gmel. 1. B. 2.

(F. Coriaceous, cylindrical, filiform, dichotomous; the apices blunt; vesicles scattered, innate, elliptical, solitary, wider than the frond. Macka'ii.

Turn. hist. 52—*E. bot.* 1927.

From 5 to 9 or 12 inches in length, slightly compressed, the size of a crow-quill near the base, narrowing upwards. Colour, olive-green, darker and blackish near the base; towards the apices pale, tinged with yellow, and somewhat transparent, blackish when dry. Substance flexible and tough; in a dry state rigid and brittle. Habit thick and bushy, branches not unfrequently recurved and twisted. Its sub-cylindrical frond never channelled, sufficiently distinguishes it, (even in the absence of its vesicles, a still stronger character) from *F. canaliculatus.* TURNER.

This distinctly new Fucus was discovered by Mr. J. T. MACKAY, in a small creek at the upper end of Birtebui Bay, near the hill of Cahil, Cunnamara, but no where else; and they are not attached to the rocks, but lying in vast quantities of loose balls upon the shore. P. E.)

F. Plant flat, forked, midribbed, entire at the edges: bladders axillary, or on the sides of the midrib: tubercles in the ends of the leaves. vesiculo'sus

Turn. hist. 88—*Stackh.* 2 *and* 6—*Velley.* 1—*E. bot.* 1066—*Bast.* ii. 11. 2—*Gesn. ap. Cord. a.* *Schmid. ic. lign.* 1. 6

—*H. ox.* xv. 8. *row the last,* 5—*Clus.* i. 21—*Lob. ic.* ii. 225. 1—*Ger. em.* 1567. 4—*Park.* 1293. 11—*Ger.* 1378. 3.

The bladders at the divisions of the leaf in pairs, the others solitary. Turns red in decay. The bladders in the substance of the leaf contain the fructifications. LINN. *suec. n.* 1145. Plant about a foot high, thick, leathery. *Leaves* ½ to 1 inch in breadth. *Bladders* elliptical. STACKHOUSE.

This plant is subject to considerable varieties, the chief of which are

1. Bladders in pairs, axillary. *F. divaricatus.* Sp. pl. *H. ox.* xv. 8. 5.
2. Bladders in pairs at the sides of the midrib, the axillary ones solitary.
3. Bladders without any regular order.
4. Tubercles in the terminations of the leaves.
5. Tubercles in a short lateral leaf.
6. Tubercles acutely oval; leaves waved at the edge.
7. Bladders almost covering the plant; often confluent. The fruit terminating, and purse-shaped. Mr. STACKHOUSE. *F. inflatus. Smith icon. plant.* 75—*Fl. dan.* 1127.
8. Branches not broader than a straw. Bladders few or none.
9. Branches proliferous, the shoots inversely egg-shaped.
10. Ends of the branches twisted. F. *volubilis* of RAY and HUDS. not of LINN.

All these varieties are found common in our seas, excepting the first sort which is mentioned by Linnæus, but I believe has not been found on our coast.

The structure of the fructifications much resembles that of the F. serratus, and the mid-rib dies away where the granulations begin.

Both this and the *F. serratus* when fully grown, are forced continually by the flux of the tides against the rocks, and by the constant collision lose the membranaceous part of their lower leaves, while the main stems, which are exceedingly tough, acquire a smooth roundish form, and the forked ribs which pervade the upper leaves, wear away to sharp thorny points. In this state both these plants have a shrub-like appearance, whilst the short leaves and inflated vessels at the summit of the branches are frequently entire. If the *F. vesiculosus* receive an injury or fracture, in any part of the leaf, provided it be in a healthy vegetating state, it constantly throws out abundance of young leaves from the injured part. If even a small aperture be made in the middle of it, a new leaf on either side will be found to shoot out. I have rarely discovered this proliferous tendency in the *F. serratus.* Major VELLEY. The terminating bladders when broken off are also replaced by a number of smaller ones. Mr. TURNER.

(Mr. Turner has lately reduced *F. spiralis*, and *F. angustifolius* to varieties of this species. Vid. Hist. Fuc. E.)

Bladder Fucus. Rocks and stones in the sea, common.
P. Jan.---Dec.*

F. Stem thread-shaped, branched: leaves spear-shaped, na′tans.
serrated: fructifications globular, on fruit-stalks.

Turn. Hist. 46—*E. bot.* 2114. 1967—*Pet. fil.* xix. 11. 10. 12—*Lob. obs.* 653. 3, *ic.* ii. 256. 2—*Ger. em.* 1615. 2—*Park.* 1281, *right hand figure.*

Fructifications sometimes ending in an awn; in some plants very short pods composed of minute warts are found in the bosom of the leaves. LINN. *Fructifications* like juniper berries, but always hollow. *Leaves* sitting, oblong, spear-shaped, varying in breadth, serratures alternate. GMEL. fuc. 93. Plant doubly winged: leafits mid-ribbed, varying much in breadth, rather toothed than serrated. Besides the larger external globules called fructifications, there are other minute granulations within the substance of the leaves.

Float Fucus. Gulf Weed. F. bacciferus. E. bot.) Sea shores. Isle of Sheppey: Northumberland: and thrown on the shore near Falmouth. P. Jan.—Dec.†

F. Thread-shaped, very much branched; branches alter- seta′ceus.
nate, two-rowed: bladders elliptical, in the substance of the leaf: leaves bristle-shaped. HUDS. 575.

(*E. bot.* 1969—*Gmel. Fuc.* 99. *t.* 3. *f.* 2. E.)

Branches nearly upright, zigzag. *Leafits* alternate, upright, tiled towards the ends of the branches. *Vesicles* growing in the substance of the stem and branches, about the size of a vetch. HUDS. *n.* 8.—Gmelin describes his plant thus. *Substance* cartilaginous, 6 inches high, brownish green. *Stem* flat, twisted at bottom, ¼ of an inch over, short. *Branches* numerous, alternate, divided and subdivided in various directions, and ultimately ending in a fork. Amongst the smaller branches and on the stem, are numerous teeth, simple or forked, various in their size, so as to give a fringed appearance to the plant. The swelling of these teeth leads one to think that they perform the office of fructification. GMELIN fuc. 160.

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* (This plant is an excellent manure for land. In the islands of Jura and Skye the cattle regularly feed upon it during winter. In Sweden this fucus boiled with meal serves as food for hogs; and it occasionally affords thatching and fuel. From five ounces of the ashes may be procured two ounces and a half of fixed alkaline salts. Preparations of this plant have been recommended as a resolvent, deobstruent, and dentifrice by Dr. Russel. But its most important use is for the manufacture of kelp. TURN. Hist. E.)

† (Extremely abundant in various parts of the world; and occasionally found in such extensive masses in the Atlantic Ocean, as, according to travellers, to give the sea an appearance resembling meadows. Prepared with vinegar it furnishes a pickle not inferior to Samphire. It is used as a sallad, eaten with lemons, pepper, capsicum and ginger, in the East Indies. It is also medicinally employed as an aperient, diuretic, and antiscorbutic. TURN. Hist. E.)

(*F. fibrosus.* HUDS.—Lin. tr. v. 3—*F. baccatus.* GMEL. E. bot. E.) Rocks and stones in the sea, but rather scarce. P. Jan.—Dec.

ercioi'des. (F. Stem ligneous, cylindrical, short, naked, its apex beset with long, cartilaginous, variously divided branches: bearing toward their extremities vesicles and fruit, clothed all over with subulate, mostly simple, erecto-patent, imbricated ramuli: vesicles roundish, innate, generally solitary: receptacles cylindrical, imbedded in the turgid apices of the branches. TURNER. E.)

Turn. hist. 191—*Stackh.* ii. 13—*Gmel.* 11. 2—*E. bot.* 1968.

The imbedded air-bladders contain filaments stretched across, analogous to the bladders in other Fuci. Fructification very visible in a slice cut out from the end of the branches. Whole plant horny to the touch, and almost prickly. Mr. STACKHOUSE.

This Fucus is found on sub-marine rocks at very low water, and is readily discovered by the bright glaucous tints which are reflected from it. It dries black, but if well preserved will retain on its upper branches, a mixture of muddy green colour, from whence those beautiful tints originate in its natural state. Major VELLEY. From 2 to 4 inches high; bushy or rather tree-like in its growth. *Leaves* alternate, in pairs, awl-shaped.

(*Fericoides.* LINN. E. bot. Linn. trans. TURNER. *F. tamariscifolius.* HUDS. WITH. ed. 3 and 4. STACKH. E.)

Heath-like Fucus. Sea rocks and stones near Marketjew, and elsewhere in Cornwall, Devonshire, and Yorkshire. [Bill of Portland. Mr. STACKHOUSE.] (In Bantry Bay. Miss HUTCHINS. E.) P. Jan.—Dec.

fibro'sus. F. Thread-shaped, very much branched: bladders oval, in the substance of the plant: leafits thread-shaped and strap-shaped. HUDS. 575.

Stackh. ii. 13—*H. ox.* xv. 8. *row the last.* 17—*Gmel.* 3. 2.

From 6 to 18 inches high. Stem knotty, rather strong;

much branched. Bladders oval, rather pointed at each end; from the upper end of each proceeds numerous capillary cylindrical branches, which extend several inches beyond the bladders and terminate the plant. Mr. STACKHOUSE.

Sea shore. Yorkshire, Lancashire, and Hampshire. [Cornish coast, common; and Yarmouth. DAWSON TURNER, Esq.] Jan.—Dec.

F. Thread-shaped; very much branched: bladders egg-shaped; terminated with leafits divided into many blunt segments, granulated at the ends. fœnicula′ceus.

E. bot. 2170—*Fl. dan.* 709—*Lob. obs.* 652, *and ic.* ii. 254. 2—*Ger. em.* 1573. 7—*Park.* 1290. 6—*J. B.* iii. 798. 1 —*Ger.* 1380. 6—*Gesn. ap. Cord. a Schmid. ic. lign.* 1. 2.

Rather woody, 4 to 6 inches high; growing in a compact bundle; livid, yellowish; black when dried. *Branches* numerous, divided and subdivided, their extremities forked. Lower branches always rounded, upper ones sometimes flatted, and ending in long pods with a fork at the extremity. GMELIN fuc. 86. Linn. in *Syst. Nat.* includes the F. *barbatus* of *Sp. pl.* as a variety of this. In our specimens, as in Gmelin's figure, the thread-shaped branches swell out into pod-like substances, principally towards their extremities. These pods have generally more or less length of the thread-shaped branch continued beyond them, but without any leafits, divided into blunt segments. It is evident, therefore, that the Linnæan specific character does not apply well to the plant we have been accustomed to call F. fœniculaceus.

F. barbatus, Linn. tr. v. 3. and *E. bot.* Rocks and stones in the sea on the coast of Devonshire. P. Jan.—Dec.

B. Leaves like a POD.

F. Compressed; branched: branches pointing two ways; alternate; very entire: fructifications on fruit-stalks; oblong; beaked. siliquo′sus.

Turn. hist. 159—*Gmel.* 2. *B*—*Stackh.* 5—*E. bot.* 474—*Fl. dan.* 106—*Giseke* 75—*Dod.* 480. 2—*Ger. em.* 1569. 7 —*Park.* 1293. 6. c. *of the three figures that on the right hand.*

Thread-shaped, compressed, zigzag, each side toothed, with rudiments of leaf-stalks or fructifications. *Fructifications* spindle-shaped, beaked at the end, alternate on fruit-stalks. *Leaves* spear-shaped, smaller than the pods. LINN. *Pods* very numerous, oblong-egg-shaped, scored across, filled with slime containing numerous granules. *Substance* leathery, 4 feet long, dark olive, black when dried. GMELIN fuc. 81. Sometimes 4 feet long; the stalk compressed, zigzag or waved, nearly of the same thickness throughout. *Pods* varying much in size as well as in the length of the foot-stalk, and in that of the beak. STACKHOUSE. The secondary branches which proceed from the main stem resemble a long strap-shaped cartilaginous leaf, from whence originate in a lateral direction the pods, and at the extremity of the pod is frequently found a continuation of that cartilaginous leaf, which appearance seems to favour the opinion of Gmelin that the pods are only the leaves in a state of fructification; but in examining this plant the pods may be found upon short foot-stalks in a very minute form with the appearance of the transverse partitions, and this in a very young state, before they become turgid. Major VELLEY. Leaves and pods not distinct; the leaves in the more advanced state of growth assume the appearance of pods, from $\frac{1}{4}$ of an inch to 1 or 2 inches long, and from $\frac{1}{10}$ to $\frac{1}{4}$ of an inch broad, but though separated by partitions they contain nothing like seeds. Mr. Stackhouse suspects that the seeds may be found in the beak-like terminations of the pods.

Rocks and stones in the sea, very common. P. Jan.—Dec.

siliculo'sus. F. Compressed, much branched, zigzag; leaves pod-like, oblong, sharp-pointed.

Turn. Hist. 159—*Stackh.* ii. 11.

This species is not uncommon. About 6 or 9 inches high; branches with knobs and hollows at the edge, the marks of leaves torn off as happens in the F. siliquosus. The fruit or pods though roundish are sharp-pointed, have no cavities nor fibres stretched lengthwise, nor transverse furrows on the outside as in F. siliquosus, but they have a tubercled appearance. The meshes as well as the seeds and globular masses are smaller than in any species I have seen. Mr. STACKHOUSE.

(Fructification always situated at the extremities of the stem and branches, consisting of receptacles, of which there are seldom more than 5 or 6 on any branch, of a form between linear and lanceolate, compressed, scarcely an inch long, or a line wide; distichous, alternate, separated by small intervals, supported upon extremely short peduncles, externally even, though perforated all over with minute pores, under which lie imbedded spherical receptacles containing a mass of brown seeds, together with a profusion of white jointed fibres. TURN. *Hist.* E.)

F. siliquosus. β. TURNER. On the coast of Cornwall.

C. Jointed like a Necklace.

F. Thread-shaped, greatly branched, forked: branches swollen out like the beads of a necklace by the distended vesicles placed at intervals within them. concatena′tus.

Velley 2. 1.

Thread-shaped; branches very numerous, opposite or alternate, often ending in forks. *Bladders* egg-shaped, in the substance of the stem and the branches, distant, an awl-shaped leaf at the side of each. LINN. Six or 8 inches long, cartilaginous, tawny olive. *Bladders* oblong, placed at a little distance, 3 or 4 one above another, each with one or two little thorns. When in fruit, the ends of the branches also swell, and are covered with numerous wart-like substances, each with a puncture in the centre and within full of seeds. LIGHTF. 9. 4. The seeds are not in the cavity, but seem to be placed beneath the outer coat of the branches, rather in an annular form. VELLEY. The granulations placed under the outer coat of the branches are dark coloured and have a pore or hole opening externally. There are other protuberances in the branches, not dark coloured, more like blisters than granulations, and these also have a pore opening outwardly.

Sea rocks and stones, Sussex and Cornwall. HUDS.—About Leith and New Haven. Mr. YALDEN.—At Weymouth.

P. June—July.

(F. Frond subgelatinous, filiform, tubular, much and irregularly branched: branches and ramuli generally verticillate, contracted as if jointed: tubercles sessile, and scattered seeds on the ramuli. TURNER. E.) kalifor′mis.

Turn. hist. 29—*E. bot.* 640—*Lin. tr.* iii. *t.* 18—*Lightf.* 31. *at p.* 962.

Height from 4 to 6 inches; whirls nearly half an inch asunder, branches 2 to 3 inches long. (Fructification of two sorts: the one consisting of naked, roundish seeds, immersed in the substance of the frond; the other of sessile capsules, spherical in their younger state, but when full grown inversely urceolate, and open at their apices, containing a globule composed of seeds of a shape between oblong and pyriform. Color, beautiful pink, extremely fugitive; when exposed to the sun, yellowish or greenish, and sometimes almost white. Substance extremely tender and slippery. TURN. Hist. E.)

F. verticillatus. LIGHTF. WITH. Ed. 3. and 4. Discovered by Mr. WOODWARD on the beach at Yarmouth, and by him first ascertained to be a non-descript species. Also found by Mr. STACKHOUSE on the western coasts. [At Scarborough. Sir T. FRANKLAND and Mr. TROWIS.] On the rocks and isles of Jura. LIGHTFOOT. [At Brighton, Mr. BORRER. Near Dublin. Dr. SCOTT. E.] A. June—Sept.

clavello'sus. (F. Frond sub-gelatinous, filiform, cylindrical, tubular, much and irregularly branched; branches and ramuli mostly alternate and distichous; tubercles sessile, and scattered seeds on the ramuli. TURNER.

Turn. hist. 30—*Lin. tr.* vi. *t.* 9—*E. bot.* 1203.

Fructification of two kinds, both situated on the ramuli: the one composed of scattered, roundish, naked seeds, immersed in the very substance of the frond; the other of capsules sessile on the sides, or at the axillæ of the ramuli, at first spherical, afterwards inversely urceolate, perforated at their apices, containing a globular mass of roundish seeds. Colour, pale red, approaching to that of bricks, less fugitive than that of *F. kaliformis;* when exposed to the sun, or decaying, turning to a whitish green. TURN. Hist. Every observer must be aware of the great similarity between the characters of this species and *F. kaliformis.* The most obvious distinction seems to be that in *F. clavellosus* the branches and ramuli are never verticillate, nor are they marked with those joint-like contractions so apparent in the other species.

Stone-crop Fucus. Discovered by Sir T. FRANKLAND, growing on rocks near Scarborough. In Dublin Bay, Dr. SCOTT. A. July—Sept. E.)

articula'tus. F. Jointed, very much branched: joints egg-cylindrical, tubular: branches opposite or in whirls.

Turn. hist. 106—*Stackh.* 8. *a. b*—*E. bot.* 1574—*H. ox.* xv. 8. *row* 2. 14.

One to 3 inches high, pale red purple. *Seeds* in the terminating joints and in others growing in whirls at the ends of the branches. LIGHTFOOT. *Stem* short, slenderer than the branches, joints egg-cylindrical. *Branches* opposite, jointed, swelling in the middle; leafits only 2, or 4 in a whirl, which distinguishes it from the F. verticillatus. The branches resemble strings of oval beads, sharp at each end, resembling some of the jointed confervæ, and still more some of the corallines. The colours pink, pale purple, or yellowish green; beautifully transparent. *Fructifications* minute blood-red dots, imbedded in the upper joints. It varies in the flatness or roundness of the joints; the round-jointed sort is tubular, but many of the compressed kinds appear to be solid. STACKHOUSE. p. 29. who since informs me that he has found a sort with the fructifications prominent, not imbedded, which will probably prove a distinct species.

Jointed Fucus. Ulva articulata. HUDS. Rocks and stones in the sea, about low-water mark, Cornwall, Devonshire, Dorsetshire, Sussex. HUDS. Jura, Cransay, Skye, &c. LIGHTF.
A. March—Nov. HUDS.—Aug. LIGHTF.

F. Gristly, creeping, branched, jointed: joints oblong, flat. re'pens.

Turn. hist. 107.

Stems narrow, matted together, set with narrow straps. *Shoots* numerous, crowded, ½ an inch high, broadest upwards, variously and irregularly divided into segments, and sometimes appearing jointed, flat, (not hollow,) pellucid, tender, dull purple below, dirty green above. DILL. 51. It has many fine runners entangled together, and emitting small claw-like ligaments. From these runners, short branched shoots are produced, without order; slender at the base, but broader upwards, jointed and much matted together. Substance cartilaginous: colour fine red purple or green. *Stems* oblong and flatted, consisting sometimes of only a single joint; in others there is a succession of 2 or 3 of these oblong joints resembling a necklace with oblong flatted beads, and in others again other joints are sent off from the sides of these, and sometimes 2 from the end. Its colour fine pinky purple; some of the joints now and then are of a bright green. *Seeds* in the substance of some of the extreme joints, like grains of fine purple powder. LIGHTFOOT. 962. (This species has been much confused with the preceding, nor do all the points of its character appear yet to be fully understood. E.)

F. Opuntia. TURNER and LINN. *Trans.* 3. *Rivularia opuntia.* E. bot. *Ulva articulata,* β HUDS. *Fucus verticillatus.* var. *repens.* Bot. arr. *ed.* ii. Sea rocks washed by the waves, in Prestholm Island. DILL.—and near Musselburgh. LIGHTF. [On the stems of the F. digitatus, frequent. On the naked rocks at St. Michael's Mount Pier. Mr. STACKHOUSE.]
August.

D. (1) Flat, midribbed, OPAKE.

F. Plant, flat, forked, mid-ribbed, serrated with teeth: fructifications at the ends of the branches, tubercled. serra'tus.

Turn. hist. 90—*Stackh.* 1—*Velley* 1—*E. bot.* 1221—*H. ox.* xv. 9. 1—*Bast.* ii. 11. 3.

Two feet high or more, but it varies much in size. Substance hard, leathery. Colour green to yellowish, or olive, blackish when dried, but still in some measure pellucid. Stem flat, pervading the whole length of the leaves, which are oblong, flat, edges set with teeth of various sizes. It has no air vesicles, but little pencils are often found on both surfaces, and *tubercles* bearing seeds, filled with woolly matter, in the substance of the leaf, either scattered, or more collected at the extremities. GMELIN fuc. 57. When in fruit the extremities are pale yellow, and the tubercles brown. Mr. STACKHOUSE. This Fucus has two kinds of fructification sufficiently obvious by the aid of a common eye-glass. As far as the mid-rib pervades the leaves you may see globular granulations scattered within the substance of the plant sending out pencils of threads upon the surface. Where the mid-rib ends, towards the termination of the leaves, the surface is set thick with tubercles, each tubercle the section of a sphere, with an opening at the top through which issues a mucilaginous fluid containing oblong substances, probably the seeds; but so small as to require a pretty high magnifier to be distinctly seen.

Serrated Fucus. Rocks and stones in the sea.

P. Jan.—Dec.

Var. 2. Leaf without serratures, or only a few at the base. HUDS. 576. A foot long, at least an inch broad. Edge unequal, less remarkably serrated. DOODY *in R. Syn.* 42. I have seen this var. of not more than the usual breadth, but in these specimens the mid-rib extended only to a short distance from the stem.

spira'lis. F. Plant flat; forked; very entire: dotted; strap-shaped and channeled towards the base: fructifications in pairs; tubercled.

Stackh. 5—*E. bot.* 1685—*Fl. dan.* 286—*H. ox.* xv. 8. 10—*Bast.* ii. 11. 1—*Dod.* 479. 1—*Ger. em.* 1567. 4, *on the right hand side.*—*Gesn. ap. Cord. Schmid. ic. lign.* 1. 5.

Twisted spirally whilst growing; membranaceous, flat, narrower below, channeled. *Fructifications* terminating, oblong, thickish, in pairs, on fruit-stalks. LINN. A foot or more in length. RAY. Syn. 41. It has no air-bladders. *Fructifications* masses of granulations at the ends of the leaves, which are mostly forked, but sometimes 3-cleft. These masses are oblong, filled with mucilage, and are of the colour of a Spanish olive. Punctures in the leaves in a regular series, garnished with pencils of fibres. I have not seen the stalk channeled. STACKHOUSE. In some specimens the dots, or globules within the substance of the leaf on each side the mid-rib, are not disposed in a regular series, but scattered, and much more numerous than represented in the fig. of Mr. Stackhouse.

F. vesiculosus. β. TURN. Hist.

Spiral Fucus. Stones and rocks in the sea, Kent, Sussex, and Essex. On the coast of Devon and Cornwall, on rocks below high water mark. Mr. STACKHOUSE. P. Jan.---Dec.

F. Strap-shaped, forked, very entire, smooth, with minute dots or punctures: fruit slender, pointed. angustifo'lius.

Lately discovered by Mr. STACKHOUSE at Portreath near St. Ives, Cornwall. It resembles the F. spiralis, but is not at all twisted in its growth, the breadth of the leaf is much less than in the kindred plants; the fruit is very narrow, pointed; often 2 horned. Mr. STACKHOUSE.

F. vesiculosus. ε. TURN. Hist.

F. Strap-shaped, mid-ribbed, flat, forked, very entire, the ends tubercled, sharp-pointed. dis'tichus.

Gmel. fuc. 1. *A.* 1.

Between gristly and leathery, 6 inches high, olive green, changing to black when dry. *Root* circular, more than ½ an inch diameter, cemented to stones. *Stems* thick, flat, branched. *Branches* uniform, forked, pervaded by a mid-rib, leaf narrow. *Fructifications* on the ends of the branches, containing granules. GMELIN fuc. 72.

F. ceranoides. Linn. *F. linearis.* Huds. 578. *F. filiformis.* Gmelin. Rocks and stones in the sea. [At Christ-church, Hants.] P. Jan.—Dec.

D. (2) Flat, mid-ribbed, PELLUCID.

F. Membranaceous, pellucid, forked, mid-ribbed: with a few lateral branches. membra-na'ceus.

Turn. hist. 87—*Stackh. pl.* 6—*E. bot.* 1758.

About 5 inches high, flat, expanding horizontally for 6 or 7 inches, pale brown yellow. *Stem* wire-like, cartilaginous, dividing into forks, and pervading the foliage in form of a mid-rib. The leafy part thin, near ½ an inch broad, transparent, with scattered clusters of regular dots. These dots are the fructification; (which is situated near the apices, consisting of largish, roundish, dark brown seeds, bordered by a wide, pellucid limbus, lying upon each side of the frond, adjoining the mid-rib, at first covered with a thin pellicle, which soon vanishes. TURN. Hist. E.)

Pellucid Fucus. First discovered by Mr. STACKHOUSE at Sidmouth, Devonshire, near the Western promontory, and figured in his admirable work on the Fuci. (Since found in St. Austell's Bay, Cornwall, by Mr. W. RASHLEIGH. TURN. Hist. E. Scottish coast. Mr. BRODIE, E.)

esculen′tus. F. Simple, undivided, sword-shaped; stem 4-cornered, running through the whole length of the leaf; winged at the base.

Turn. hist. 117—*Fl. dan.* 417—*E. bot.* 1759—*Lightf.* 28, *at p.* 938—(*Gmel.* 29. 1, *wants the wings at the base of the stem.*)

Stem thick, broad, 4-sided, winged at the base with flat sword-shaped leafits; leaf very large, penetrated through its whole length by the stem which is visible on both its surfaces. In these circumstances it differs from the *F. saccharinus.* LINN. Sometimes from 5 to 10 yards long, or more, olive coloured. *Stems* solid, round, upright, pervading the whole length of the leaf. *Leaf* extremely long, rounded at the base, narrower towards the end, diaphanous, wonderfully plaited and curled. GMELIN fuc. 200. In Hudson's Synonym for *Fl. dan.* read *Gmelin.*

(*F. fimbriatus.* GMELIN. *F. tetragonus.* Lin. tr. 3. p. 140. *F. teres.* Ditto. E.)

Eatable winged Fucus. Daberlocks, in Scotland. Sea rocks and stones. Cumberland and Scotland. [Weymouth and the Cornish coast. In deep water at Acton Castle, Cornwall. Mr. STACKHOUSE.] (Near Belfast. Mr. TEMPLETON. Bantry Bay. Miss HUTCHINS. Turn. Hist. E.) P. Jan.—Dec.*

sanguin′eus. F. Leaves membranaceous; egg-oblong; waved at the edge but very entire; on leaf-stalks: stem cylindrical, branched.

Turn. hist. 36—*Stackh.* 7—*E. bot.* 1041—*Gmel.* 24. 2—*Fl. dan.* 349—*Gies.* i. 24—*H. ox.* xv. 8. *row.* 1. 6.

Resembling the leaves of the *Rumex sanguineus,* in size as well as form. *R. Syn.* 49. *Stem* very short, ending in oblong spear-shaped leaves, very entire, waved at the edge, rounded at the end furnished with a mid-rib which sends off lateral alternate veins; from 3 inches to a foot in length and from ¾ to 2 inches in breadth; pellucid, pale red purple. GMELIN fuc. 185. *Fructifications* roundish, on fruit-stalks, blackish red, on the sides of the branches and ribs, of the size of rape seed. HUDS. *n.* 3. *Stem* very short, woody, branched. *Leaves* mid-ribbed, oblong, blunt, about 6 inches long and 1½ inch broad, pellucid and thin as gold-beaters skin; red, often with cross bars or stripes of a dull pinky yellow. STACKHOUSE.

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* (This plant is much eaten in Scotland, and frequently exposed for sale in the markets. It is thought to strengthen the tone of the stomach. E.)

Red dock-leaved Fucus. Rocks and stones in the sea. (On marine rocks near Scarborough. Mr. TRAVIS. Leith and Dover shores. E.) Yarmouth. Mount's Bay. Falmouth.

P. Jan.—Dec.

F. Leaves membranaceous, oblong, waved, indented: stalk cylindrical; branched. sinuo'sus.

Turn. hist. 35—*Stackh.* 7—*E. bot.* 822—*Fl. dan.* 652—*Gmelin* 24. 1.

Stem cylindrical, woody, branched, garnished with leaves of various sizes. *Leaves* on leaf-stalks, mid-ribbed, veined, scolloped and indented, often fringed; thin, pellucid; colour pale pink, with tints of green and olive. The mid-rib of the larger leaves sends out smaller leaves. STACKHOUSE. *Fructifications,* small red oblong substances, tapering down into fruit-stalks, placed on the stem or on the edges of the leaves. Within these substances, which in the microscope appear like processes issuing from the leaves, small red granulations may be seen.

F. *sinuosus.* E. bot. (TURN. Hist. and Syn. *F. crenatus.* GMELIN. LINN. *F. roseus.* Fl. dan. *F. rubens.* WITH. ed. 4. E.) Flor. dan. 652, has been quoted as this plant, but the leaves are much broader than in any specimens which I have seen, and in Gmelin 24, 1. the branches are winged with oval leafits and terminated by an odd one.

Common on our sea coasts. P. Dec. Jan.

F. Mid-ribbed, much branched: leaves strap-spear-shaped, very entire: mid-rib proliferous. Hypoglos'-sum.

Turn. hist. 14—*Linn. tr.* ii. *t.* 7—*E. bot.* 1396.

About 2 or 3 inches high, membranaceous, extremely thin, bright red. *Fructification,* MALE, vesicles the size of mustard seed, dark red, placed on the nerve near the extremity of the leaves.—FEMALE numerous, very minute grains scattered near the nerve on each side the leaf. However it is possible that these red vesicles are real capsules, and that the granulated appearance proceeds from the capsules having burst and discharged their seeds. WOODWARD. Linn. tr. ii. 30. One single globular vesicle in which minute grains may sometimes be found, appears to be the complement to each leaf, arising from the nerve which passes through the centre of these globules. Major VELLEY. (Mr. Turner has since proved that the globules on the mid-rib are capsules, from which the seeds are discharged with an elastic force, and then adhere to the surface of the frond. How far the plant called *Fucus ruscifolius*, in *Turn. Hist.* 15, and *E. bot.* 1595, is really to be specifically distinguished by its chain-like veins, from *F. hypoglossum* we still beg leave to doubt. E.)

Sharp Tongue-bearing Fucus. (On marine rocks near Scarborough, but very rare. Mr. TRAVIS. E.) Found by Mr. WIGG on the beach at Yarmouth, by Mr. CROWE at Cromer, and by Dr. GOODENOUGH on the southern coast.

ala'tus. F. Membranaceous; somewhat forked; mid-ribbed; segments alternate, decurrent, cloven. LINN. Leaves very entire coloured. HUDS. *ed.* i. 473. *ed.* ii. 578.

Turn. hist. 160—*Fl. dan.* 352—*E. bot.* 1837—*Gmel.* 25. 1; 2, *in its younger state;* 3, *a variety with broader leaves.*

Leaves branched, purple, diaphanous, strap-shaped, ends somewhat toothed, mid-rib rather thick. LINN. Three inches long or more, membranaceous, thin.—*Stem* flatted, 1 line broad, very much branched. *Branches* alternate, edged with a thin leafy substance. GMELIN fuc. 187. Rose colour or pink; forked; consisting of a mid-rib garnished on each side with a transparent and very narrow membrane. Mr. STACKHOUSE. When the leafy membranaceous substance which edges the rib of the branches decays or rubs off, the plant assumes a very different appearance, seeming then to be composed of thread-shaped branches.

Winged crimson Fucus. Sea rocks and stones. On the large stalks of F. polyschides and digitatus. Mr. STACKHOUSE. (At Lossie-mouth, on the north-east coast of Scotland. Mr. BRODIE. On the southern and western shores of England and Ireland, not uncommon. TURN. Hist. E.) P. May—Oct.

E. (1) Flat, ribless, OPAKE.

lo'reus. F. Strap-shaped, forked, tubercled all over.

Turn. hist. 196—*E. bot.* 569—*Fl. dan.* 710—*Schlosser in Gent. Mag.* 1756, *p.* 64, *f.* 1 *to* 4—*Ger. em.* 1568, 5—*Park.* 1293. 6.

Tall, forked, strap-shaped, compressed: set with raised, blunt tubercles. LINN. This plant at its first appearance so much resembles a Fungus, that some authors have mistaken it for one. Ray seems to have described it as a distinct species under the name of "Fucus Fungis affinis." *Syn.* p. 43, *n.* 15, From the centre of the little Fungus-like substance 3 or 4 shoots arise, and extending by degrees, into branches, constitute the perfect plant. The little Fungus still continues and forms a kind of cup at the base of the stem.

Grows to a great length, and is more regularly forked than any plant I know. It grows fixed to the rocks by a most tenacious gluten. Major VELLEY. A short stem supports a kind of cup full ½ an inch diameter. Out of this arise one or two strap-shaped leaves, several feet in length, nearly as broad as a straw, dividing into forks at distant intervals. The whole plant is opake, ribless, dark coloured, and in every part beset with tubercles filled with a slimy fluid, and open at the top. A pencil of hairs issues from some of them, but the fluid they pour out contains nothing like seeds; the others without hairs pour out a mucilage filled with seeds of an oblong shape, but so small as to elude the naked eye. This apparatus of fructification seems nearly the same as that in the F. serratus, except that in this plant the male and female organs are indiscriminately dispersed over the whole plant, whilst in that the male flowers are on the lower, the female on the upper part of the branches. Dr. Borlase, in his Nat. hist. of Cornwall, tells us that he measured a plant 22 feet long.

Sea Thongs. Rocks and stones in the sea. Mount's-bay, Cornwall. P. June—Sept.

F. Without a mid-rib; simple; sword-shaped; stalk cylindrical; very short. saccharinus.

Turn. hist. 163—*E. bot.* 1376—*Gunn.* ii. 7. 2—*Fl. dan.* 416 —*Gmel.* 27 *and* 28.

Oval or oblong, leathery, often 4 feet long and 2 broad, waved, narrow at the base, adhering to stones as if by means of fingers. LINN. *suec. n.* 1151.—*Stem* from 2 to 12 inches high. *Leaf* single, tapering at each end, flat, sometimes 2 yards long, puckered, the wrinkles containing a jelly-like mucus, in which the fructiferous granules are lodged. GMELIN. fuc. 195. *Fructification,* thin inflated pellicles like those of F. digitatus containing a network of tubes in a thin mucus, and similar tubes are found in the stiff pellucid jelly between the skins. I never observed the seeds exposed in the marginal sinusses as mentioned by Gmelin. *Seeds* not yet observed. Mr. STACKHOUSE.

Sweet Fucus. Rocks and stones in the sea. P. Jan.—Dec.*

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* Washed in spring water and then hung up in a warm place, a substance like sugar exudes from it. Some people eat it fresh out of the sea. Smaller leaves and clusters eaten by the poor as *F. Palmatus.* RUTTY.

polyschi′-des. F. Hand-shaped, without a mid-rib: segments sword-shaped: root tuberous, hollow: stalk flat, plaited at the edge.

Turn. hist. 161—*Stackh.* 4—*Gmel.* 30—*E. bot.* 1760.

Root large. *Stem* flat, spirally twisted, more than a foot high, its top expanding into a roundish leaf which is divided into several very long segments, broad at the base, tapering to a point, sometimes forked without a mid-rib. The substance of the plant is cartilaginous; it is sometimes 15 feet in extent; its colour greenish, changing to olive or to yellowish. GMELIN fuc. 203.

From a large hollow bulb arises generally one, sometimes 2 or even 3 compressed stalks, 4 inches or more wide, thick in the middle, thinner at the edges, where it is strangely furbelowed and contorted. This stem, which is upwards of 2 feet long, suddenly expands into a very wide head, which divides into sword-shaped segments. Its substance is leather-like, totally free from veins or fibres; colour deep brown, and appearing as if varnished. The bulb sends out numerous strong horny roots which strike deep into the ooze, or lay hold of the stones in the larger crevices of the rocks. STACKHOUSE. *Ner. Brit.* The roots are conical, serpentine, and well represented in the fig. of Mr. Stackhouse. Great masses of these roots are frequently thrown upon the shore, and Mr. Stackhouse informs me that the plant sometimes weighs 20 or 30 pounds, or more. The fructification consists of many dots or globules dispersed through the whole of the foliage, within its substance. Mr. Stackhouse informs me that he has also found vesicles under the surface containing reticulated jelly like those in the F. digitatus.

(*Great Furbelowed Fucus. F. bulbosus.* HUDS. 579. TURNER. *F. polyschides.* LIGHTF. STACKH. E.) Rocks and stones in the sea; on the coast of Cornwall, frequent.

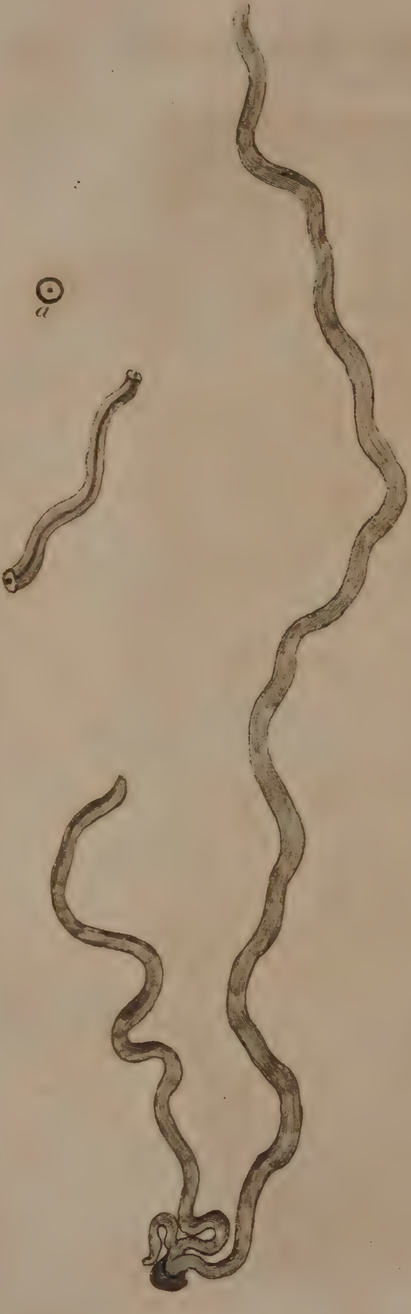
P. Jan.—Dec.

Sarnien′sis. (F. Frond, sub-membranaceous, flat, without mid-rib; laciniated in a palmate manner; proliferous from its margin; segments linear; tubercles spherical, immersed.

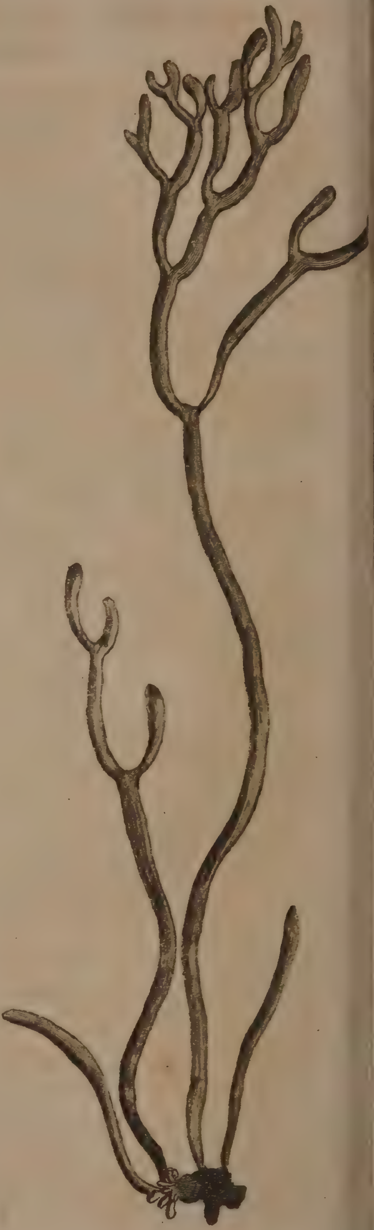
Turn. hist. 44—*Roth. Cat.* iii. *t.* 1—*E. bot.* 2132.

Fronds numerous, 9 inches or a foot long. Fructification, according to Roth, roundish black tubercles, dispersed without order, of the size of poppy seed. Colour purplish, semi-transparent, very fugitive; darker when dried; on exposure to the sun turning yellowish, and at length white. Substance tough. Too generally found mutilated.

P. 113. Pl.x



2. Ulva elminthoides.



1. Fucus bifurca

Guernsey Fucus. In Dublin Bay. Dr. Scott. On the Scotch coast. Dr. Walker. Sent from Guernsey to Prof. Mertens. Coasts of England. Messrs. Woodward and D. Turner by whom it has been several years observed, though only recently ascertained as a new species. Turner and Roth. E.)

F. Without a mid-rib; hand-shaped: segments sword- digitatus.
shaped: stalk cylindrical.

Turn. hist. 162—*Stackh.* 3—*Fl. dan.* 392—*E. bot.* 2274—*Gunn.* i. 3.

Stem as thick as a walking stick. Linn. *Stem* cylindrical, compressed, 1 to 2 yards high. Gunner. Norv. i. 34. It tapers pretty much towards the top, and then suddenly expands into a leaf of a foot or more in breadth. This leaf is divided into a number of segments, from 4 to 12, each of which is sometimes a yard long, and tapers to a point. The substance thick, leather-like, ribless, with a fructification of thin inflated pellicles produced without order on the surface, containing a mucilaginous fluid, but without apparent granules. The plant when fresh has a rich brown yellow colour, and appears smooth and shining as if varnished. Stackhouse. Nereis Britannica, p. 6.

The pellicles are not on the surface, but imbedded. They grow close together, are often confluent, or as it were quilted. The jelly they contain, under high magnifiers appears reticulated. Communicated by Mr. Stackhouse, since the publication of his first fasciculus of marine plants. When the whole plant is taken out of the water and held by the stem, it not unaptly resembles a flag-staff and flag: the latter cut horizontally into strips.

Sea Girdles and Hangers. Stones and rocks in the sea. On he coasts of Cornwall, plentiful. Stackhouse. P. Jan.—Dec.

Boiled tender and eaten with butter, pepper, and vinegar, is aid by Gerrard to be good food.

F. Cartilaginous, forked, dilated upwards, sharp-pointed, mammillo-
clothed on both sides with numerous mammillary sus.
fruit-bearing tubercles. *E. bot.*

E. bot. 1054—*H. Ox.* xv. 8. row 1. 13.

Dr. Smith observes "this Fucus can be confounded with no ther, if attention be paid to the singular mammillary tubercles hich cover both sides of its uppermost ramifications, each of hich contains a cluster of dark-red seeds. In habit and color, arying from red or pale purple to a pale greenish brown, it agrees with *F. crispus*, but is more channelled, and generally sharper pointed.

Mammillary Fucus. F. canaliculatus, β. HUDS. *F. ceranoides.* WITH. Frequent on the coast of Yarmouth, Cornwall, &c. Sept. E.)

stella'tus. F. Cartilaginous, forked, greatly widening upwards; surface thick set with excrescences bearing fructifications on their extremities.

Plant 4 inches high, beautifully hedge-hogged with excrescences, sometimes on one, sometimes on both surfaces. They are upright, partly cylindrical, fleshy, bearing the fructifications imbedded in their tops. Its colour is brown, purple or bright green. Mr. STACKHOUSE.

Mr. Lightfoot tells us that the upper segments are numerous, often crowded, not properly forked, but growing either in a stellated or finger-like form.

F. ceranoides. δ. Huds. β. Lightf. *Fucus ceranoides albidus, ramulorum apicibus stellatis.* Ray *Syn.* 44, *n.* 18.

canalicula'tus. F. Flat, forked, very entire, strap-shaped, grooved: fructifications terminating, tubercled, divided into 2 parts, blunt. LINN. *syst. nat. ed.* xii. 716. *syst. veg. ed.* xiii. *and* xiv.

Turn. hist. 3—*E. bot.* 823—*Gmel.* 1. *A.* 2 *and* 3—*Fl. dan.* 214—*H. ox.* xv. 8, *row* 2. 11. 1, *and row the last,* 12—*Velley pl.* 1; *fructification.*

Many times forked, smooth, narrow, one side convex, the other channeled. *Fructifications* terminating, dividing into 2, or in pairs, sitting, sprinkled with perforated tubercles. LINN. Grooved, or cut into longitudinal hollows on one surface. *Stems* and leaves ribless. GMELIN fuc. 73. Seldom exceeds 3 or 4 inches in length, but covers the surface of the rocks for many yards square. It has fruit-bearing and barren branches at the same time, the former appearing to be 2 years old or more. The ends are almost or quite yellow when ripe, and much tubercled. The fructification is precisely analogous to that of F. vesiculosus, but the seeds are larger. Mr. STACKHOUSE.

F. excisus. Linn. sp. pl. 1627. Syst. nat. ed. xii. 715. Huds. ed. i. 468.

Rocks and stones in the sea. P. June—Aug.

F. Gristly, compressed, ribless, hand-shaped: fructifications terminating, roundish; perforated at the end. pygmæ'us.

Turn. hist. 204—*E. bot.* 1332—*Lightf.* 32. 1, *at p.* 948.

Gristly, black; dark green when held against the light; seldom more than ¼ of an inch high. LIGHTF. It has the appearance of a moss in its crowded growth, entirely covering the surface of the rocks, in patches; is hard and brittle like a Lichen, and may be considered as amphibious, being under water only at the time of high tide.

(*Pigmy Fucus. F. lichenoides.* Lin. tr. v. 3. HULL. E.) *F. pumilus.* Huds. 584, but not *F. pumilus* of Flora Danica. In large quantities on rocks in the little isles of Jura washed by the tides, on the coast of Jona, and in the Frith of Forth, and several other places. LIGHTF. Rocks and stones in the sea between high and low water mark. HUDS. [Coasts of Cornwall. Mr. STACKHOUSE.] In Bantry Bay. Miss HUTCHINS. TURN. *Hist.* E. P. June—Oct.

F. Creeping, branched, matted together: leaves ribless, spatula-shaped, either entire and rounded at the end, or cloven or 3-cleft. pusil'lus.

Stackh. pl. 6.

Not ½ of an inch high. It grows in tufts like a Lichen, black in the mass, but pale red when held against the light. Substance rigid, horny. It is branched from the root, the lower part of the branches garnished with a strap-shaped fringe. The spatula-shaped leaves appear at the end of these branches. Fructification not yet discovered. The Fucus pygmæus grows upright, this is a creeping plant. *Nereis Britannica.*

First discovered by Mr. STACKHOUSE on the red sand stone rocks at Sidmouth.

E. (2) Flat, ribless, PELLUCID.

F. Membranaceous, without a mid-rid, simple, transparent, sword-shaped, border plaited and waved: stalk cylindrical, very short; (compressed. E. bot.) phylli'tis.

Turn. hist. 164—*Stackh. fasc.* ii. *pl.* 9.

About a foot long and an inch broad. *Fructification*, vesicles immersed as in F. saccharinus. Thought by Huds. and Lightf. to have been a var. of that plant, but the leaf is never wrinkled in the middle part, and its texture is thin and membranaceous like an Ulva. It further differs from the F. saccharinus in growing in clusters, though each plant has its proper root. The F. saccharinus is dense and horny in its texture, even when young.

(*Harts-tongue Fucus.* Generally growing on other marine plants. E.) F. *saccharinus*, var. δ Huds. var. β Lightf. p. 941, but not his reference to Bauhine. *Fucus Phyllitidis folio.* Ray. Syn. 40. At Weymouth, and Tenby; not uncommon on the South coast. Mr. STACKHOUSE; (Yarmouth, Mr. TURNER. Larne near Belfast, Mr. TEMPLETON. Bantry Bay, Miss HUTCHINS. TURN. hist. E.)

palma′tus. (F. Membranous, palmate, smooth on both sides: segments oblong and nearly simple. E. bot.

Turn. hist. 115—*E. bot.* 1306—*Lightf.* 27. *at p.* 933—*Kniph.* 1—*Gmel.* 26—*H. Ox.* xv. 8. 1. E.)

Stem cylindrical, very short. *Leaf* very smooth, waved at the edge, often proliferous, variously cut into segments towards the top like an expanded hand; membranaceous, thin, pellucid, green or reddish, near a foot broad. GMELIN fuc. 189.

Dullesh, Irish. *Dills*, Scotch. *Dulse*; in Northumberland. RAY. *Ulva palmata.* WITH. ed. 3 and 4.

Rocks and stones in the sea. P. Jan.—Dec.*

edu′lis. F. Flat wedge-shaped, ribless, thick, very succulent.

Turn. hist. 114—*E. bot.* 1307.

Leaves arising many in succession, of different sizes, from a discoid base. It is as thick as leather, large, veinless, transparent. From a flat discoid base arise 2, 3 to 8 or more leaves of different sizes, and of different ages, the largest are from 6 to 9 inches high, on a thick compressed, or nearly cylindrical stem. This *stem* suddenly dilates into a very wide, smooth, leather-like leaf, sometimes 4 or 5 inches over near the top, in shape like the lateral section of a wedge. When in fruit, the middle of the leaf, betwixt the two coats is a vascular jelly, the vessels are annular tubes chained together. The surface at this time rises into conical protuberances perforated at the top.

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* After being soaked in fresh water, it is eaten either boiled, or dried, and in the latter state has something of a violet flavour. It is sold in the streets of Dublin, being dried, and is said to kill worms. The poor in the North of Ireland eat it boiled. RUTTY. (In Edinburgh it is eaten raw an hour or two before dinner. SMITH. E.)

Red leathery Fucus, or Dulse. The above has been sometimes supposed to be the F. palmatus. It is very common in Cornwall, and is probably the true Scotch Dulse, the *Fucus scoticus, latissimus, edulis, dulcis.* Ray *Syn.* 46. n. 30. This is eatable when raw, which is hardly the case with the F. palmatus, prolifer, laciniatus, and ciliatus; all of which, though thin and transparent, are extremely tough. It is also eaten after being pinched with hot irons, and then tastes like roasted oysters. Mr. STACKHOUSE.* (Leith shore; Dover; and North Wales. *E. bot.* E.)

F. Membranaceous, forked, segments broad, strap-shaped: fructifications in oblong spots. puncta'tus.

Turn. hist. 71—*E. bot.* 1573.

Substance thin as gold-beater's skin; colour brownish, but perfectly pellucid. It arises from a flat knobby base, of a considerable size, extending to the height of 6 inches. It is forked in its mode of growth, the segments from 1 to 1½ inch broad, of the same breadth from one subdivision to another. The ends are subdivided into several strap-shaped segments about the breadth of a straw, ½ an inch long, and blunt or notched at the extremities.

The fructifications appear in every part of the plant, except the terminating segments. They assume the shape of oblong spots, placed at pretty regular intervals, of a darker colour than the rest of the plant. These spots under the microscope, are found to consist of dark red granules, or globules; smooth and without any fruit-stalk.

Dotted Fucus, Ulva punctata. STACKH. in Lin. Trans. First discovered by Mr. STACKHOUSE, on the sands at Weymouth, very near the pier, at low water mark.

Mr. Stackhouse observes, that a plant of this size and singularity must have attracted notice if common. He therefore conjectures that it must be an inhabitant of deep waters, fortuitously thrown ashore in a state of perfection. Sep. 1792.

This plant bears real tubercles, exactly resembling the fructification of F. *laceratus.* Turn. Hist. We learn from Mr. TURNER that it has since been found on the coast of Cornwall by Mrs. GRIFFITH, at Swansea: by Mr. DILLWYN, at Larne, near Belfast by Mr. DRUMMOND: and in Bantry Bay by MISS HUTCHINS, E.)

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* (A fine lake has been prepared from this plant by the aid of alum, and there is reason to expect it may prove serviceable in dying. E.)

ligula'tus. F. Flat, membranaceous, ribless, strap-shaped, doubly winged: wings sword-shaped, fringed.

Turn. hist. 98—*Lightf.* 29, *at p.* 946—*E. bot.* 1636.

Leaf 1½ to 2 feet long, about 2 lines broad, egg-shaped, herbaceous; serratures sometimes bristle-shaped. Huds. n. 32. There is a bulbous excrescence at the root, above which it generally breaks off. *Fructifications* on the stem, near the setting on of the leaves, resembling the saucers of a Lichen. Mr. Stackhouse. Plant green, thin and transparent. The main stem about the breadth of a straw. The younger plants much like the feathered part of a large quill.

Green strap-leaved Fucus. F. *herbaceus.* Huds. 582. Frith of Forth, about New Haven and other places, Lightf.—Rocks and stones in the sea. Thrown on the shore near Hastings, Sussex, and in Northumberland. Huds.—[Yarmouth shore. Mr. Woodward.—Cornish coast, common. Stackhouse.] (Bantry Bay, plentifully. Miss Hutchins. Turn. Hist. E.)

denta'tus. F. Membranaceous, ribless: leaves wing-cleft; segments alternate, bluntly toothed.

Turn. hist. 13—*E. bot.* 1241—*Fl. dan.* 354—*H. ox.* xv. 8. *row* 1. 5—*Buxb.* iii. 65. 4.

Red; diaphanous; hollows of the clefts rounded. (The proper *fructification* consists of axillary clusters of pointed pods, each containing two rows of numerous seed-bearing tubercles. On some specimens are tubercles of a different kind not yet understood. Plant reddish brown. *E. bot.* E.)

(Not F. *corymbiferus* of Gmelin, as many botanists have suspected. That is a large plant, growing a foot high or more; this rarely exceeds 5 or 6 inches. Ends of the branches divided into acute segments. A faint nerve sometimes distinguishable in the branches. Lin. tr. iii. 159. E.)

Toothed Fucus. Rocks and stones in the sea, Devonshire and Yorkshire. (In Ireland and Scotland, Firth of Forth, Dr. Smith. E.) A. May—Oct.

lacinia'tus. F. Nearly stemless: leaves flat, membranaceous, without a mid-rib; branched: branched widening, hand-shaped.

Turn. hist. 69—*E. bot.* 1068.

Membranaceous, firm, pellucid, of a fine red colour. Leaf without a mid-rib, branched, branches mostly forked. Three to 4 inches long, 4 or 5 broad, but a single division about 1 inch broad. Sides and ends of the branches fringed and toothed. Secondary leaves only about a line in breadth. GMELIN.

Var. 1. Edges fringed.

Turn. hist. 68—*Gmel.* 21. 4—*Fl. dan.* 353.

F. *laceratus.* Gmel. E.bot.F. *ciliatus.* Huds. excluding his references to Gmelin. This is the plant in its most perfect state: the fructifications forming the fringe at the edges of the foliage. Neither this nor the next var. can properly be said to have any stem, there being only a small knob serving the purpose of a root. Both of them are occasionally proliferous, sending out rows of young leaves from the edges of the old ones; though possibly only when some injury has been sustained. Gmelin says his plant was of a dirty yellow colour, whence I conclude his specimens had been exposed to the weather.

Var. 2. Edges entire.

Fl. dan. 1128—*Gunn.* 6. 4—*Gmelin.* 21. 1.

This is its appearance when it has no fructifications.

F. *laciniatus.* Huds. F. *ciliatus.* Gmelin. Both these varieties grow upon rocks and stones on our sea coasts, and are very conspicuous in the summer months, on account of their beautiful red colour, which sometimes approaches to scarlet.

(That very learned botanist Mr. Dawson Turner is convinced that F. *laciniatus* and F. *laceratus* ought to be rendered distinct species: and that the latter should embrace F. *crispatus*, as also our F. *cristatus* and F. *endiviæfolius.* This arrangement will probably meet with general approbation, though we are not yet fully prepared entirely to adopt it. E.)

(*Jagged Fucus.* Submarine rocks. Feb.—May. E.)

F. Leaves membranaceous, flat, ribless, widening, cloven. bifidus. HUDS. 581.

Turn. hist. 154—*E. bot.* 773.

Root branched, flatted, creeping. *Leaf* 1 to 1½ inch long, membranaceous, once and sometimes twice cloven, wedge-shaped or widening towards the end, purple, semi-transparent. HUDS. *n.* 28. I have never seen this plant, but whatever the specimens may prove, there is nothing in the specific character or description of Mr. Hudson to mark it as distinct from the F. laciniatus, of which it is perhaps only a small variety. Fucus *bifidus* of Gmelin is a different plant.

(From two specimens given by Mr. Hudson to Sir Thomas

Frankland, the latter asserts that the F. membranifolius of Lin. tr. iii. 120. is no other than this plant. E.)

Rocks and stones in the sea, Hampshire. A. May—Oct.

soboli′ferus. (F. Frond membranaceous, flat, without mid-rib, laciniated in a palmate manner, proliferous from the margin; segments dilated upwards, the extreme ones gashed at their apices, with numerous short, sub-setaceous teeth. TURNER.

Turn. hist. 45—*E. bot.* 2133—*Fl. dan.* 1066.

Colour pink, transparent; turning in decay to a dirty yellowish, and at length nearly to white. Substance extremely thin and tender; under the microscope beautifully reticulated with roundish meshes. A strong resemblance exists between this and F. *Sarniensis*, in which latter, however, the substance is much thicker, while in the former it is as thin as gold-beater's skin. TURN. HIST.

Many-branched Red Fucus. This new British species appears to have been very rarely found; one specimen having been recorded in Fl. dan. and only a single plant by Mr. C. FOTHERGILL growing on the shores of the Orkney Islands. E.)

cris′tatus. F. Leaves flat, membranaceous, ribless, nearly strap-shaped, much branched, curled. HUDS. 580.

Fl. dan. 826.

Leaf a palm long, very tender, rosy red, somewhat waved, blunt, the segments bearing fruit. *Fructifications* roundish, small, dark red. HUDS. *n.* 27. Very tender. Blood red. LINN. Resembles the F. laciniatus in texture, but in the blunt terminations of the teeth is more like the F. pinnatifidus in its younger state. If the fig. of Wulfen in Jacq. coll. iii. 16. 2, be the true Linnæan plant, our specimens are not so, but the figures in Fl. dan. are the same as ours. Wulfen's figure represents the edges of the leaves very much crisped and curled.

Ulva ramosa. Huds. ed. i. 476. Rocks and stones in the sea, Cornwall, Devonshire, and Hampshire. A. May—Oct.

endiviæfo′lius. F. Membranaceous, jagged; segments dilated, waved; edges curled and set with wart-like dots. LIGHTF. 948.

E. bot. 1067—*Lightf.* 32. *f. g. at p.* 948.

Two or 3 inches in length and breadth; pale, red, thin, membranaceous, without rib or nerve. Branchings irregular, segments broadest towards the ends, waved, curled and fringed. *Fructifications* small, red, elevated, wart-like dots; at the base of the fringe; each containing 10 or 12 seeds. LIGHTF. This appears to be a smaller plant than the F. laciniatus, but unless the greater size of its fructifications will distinguish it, nothing hitherto mentioned is sufficient to do it.

Endive-leaved Fucus. F. crispatus. HUDS. Frith of Forth, and coast of Jona. [Scarborough. Sir T. FRANKLAND.] Aug.

F. Stem strap-shaped: leaves membranaceous, without a mid-rib, strap-spear-shaped, simple, mostly on leaf-stalks, edged with processes of various lengths. lanceola'tus.

Stackh. ii. 13—*Gmel.* 21. 3.

Plant about 4 inches high. Stem near 1½ inch. *Leaves* flat, membranaceous, pinky red, strap or strap-spear-shaped, 1½ inch long, from the breadth of a straw to ¼ that size; fringed, or rather winged with appendages of very various lengths, the larger ones ½ inch long and these sometimes toothed at the edge, but without any appearance of fructification. This has been considered by Mr. Hudson and others as a variety of his ciliatus, but it differs in having a stem, in shewing no granulations on the fringe of the leaves, and also in their shape. It is nearer to the F. holosetaceus, but has no appearance of bristles on its surface.

Further observations are wanting to determine whether it be really a distinct species. I suspect that the processes from the edge of the leaves may be other leaves in an unfinished state of growth.

(*F. ciliatus* ε. *Turn. hist.* E.) *F. ligulatus.* Gmelin. But that name having been given by Mr. Lightfoot to another well established species, it could not be retained.

Specimens from Mr. STACKHOUSE, gathered on the coast of Cornwall.

(F. Stem cylindrical, filiform, short, branched; expanded at its summit into a cartilaginous, flat, nerveless, simple, reniform or orbicular, entire leaf, when old proliferous from its margin; sessile, hemispherical tubercles scattered over the surface of the frond. TURNER. renifor'mis.

Turn. hist. 113—*E. bot.* 2116.

Stems half an inch long; leaf half an inch to an inch in diameter. Colour a pale blood red, semi-transparent, soon fading on exposure to the sun. The remarkable shape of its leaves seem to keep it distinct from all other species. It is of very unfrequent occurrence, and seems to be only found cast on the shore after storms.

Kidney-shaped Fucus. At Niton, Isle of Wight. Miss E. EVERETT, at Budleigh. Mrs. GRIFFITHS. Cornwall, Mrs. RASHLEIGH. P. TURN. hist. E.)

holoceta'-ceus. F. Stem short: leaves membranaceous, without a mid-rib, edged with prickle-shaped teeth and producing similar prickles on both surfaces.

Turn. hist. 70—*Gmel.* 21. 2—*E. bot.* 1069.

Membranaceous, firm, diaphanous, without a mid-rib, branched, 6 inches over, branches alternate, somewhat winged. Primary leaf 1 inch broad, secondary two lines; edges fringed with distant, upright bristles differing in size, simple or forked. Both surfaces have some of these bristles which are stiffer and sometimes hooked. GMELIN. *Stem* ¾ of an inch high; whole plant from 3 to 5 inches high; blood red. Leaves from ¼ to near ½ an inch broad, the former not branched, but all of them edged with prickle-shaped substances the same as those on the surface. These vary much in size, are sometimes compound, but have never the appearance of fructification like the fringe in the F. laciniatus.

F. holosetaceus. GMELIN. (*F. ciliátus.* TURNER. E.)

Var. 2. Leaf simple, 1 to 1½ inch long.

Mr. Lightfoot arranged this as a variety of his F. ciliatus, but the existence of the prickles and the length of the stem induce me to consider it as a young plant of the F. holosetaceus.

On rocks and stones in the sea; chiefly in the Summer and Autumn. [On the Cornish coast. Mr. STACKHOUSE.]

pro'lifer. F. Leaves flat, membranaceous, without a mid-rib; chain-like-proliferous, cloven at the end.

Lightf. 30, *at p.* 949—*Fl. dan.* 708.

Membranaceous, red, without a mid-rib, 4 or 5 inches long, a single leaf about ¼ of an inch broad. Proliferous from the surface, not from the edge: shoots forked. *Fructifications* red spherical warts scattered on the surface of the leaves, smaller than a pin's head. LIGHTF.

A singular variety of this is represented in Mr. Stackhouse's second fasciculus of British Marine plants. It is proliferous only at the edges and at the lacerations, and that its habit is perfectly distinct from the plant of Lightfoot, approaching to the F. palmatus, but possibly a new species. P. Jan.—Dec.

(*Red proliferous Fucus.* *F. rubens.* LINN. HULL. Lin. tr. *F. crispus.* HUDS. *F. prolifer.* LIGHTF. Not uncommon. Western coast, Yarmouth, &c. E.)

F. Frond cartilaginous, nerveless, dichotomus; branches linear, entire, rounded at their apices; tubercles hemispherical, sessile on the disk of the leaf. Norve'gicus.

Turn. hist. 41—*E. bot.* 1080—*Gun. Norv. t.* 3. *f.* 4.

Tubercles the size of a poppy-seed, of the same colour as the frond. Colour deep blood red, somewhat tinged with brown, a beautiful transparent pink in the younger shoots, and sometimes at the apices; turning to a dirty yellowish colour. Substance cartilaginous, pliant, tough, approaching to coriaceous in the older, and to membranaceous in the younger plants. TURN. *hist.*

Red Norway Fucus. This species was first made known by Bishop GUNNER as a native of the coast of Norway. It has since been found at Dover by Mr. DILLWYN, at Exmouth, plentifully by Sir T. FRANKLAND, and still farther west by Mr. GRIFFITHS. Sept.---March. E.)

F. Stem compressed, nearly simple: leaves pointing from two opposite lines, strap-shaped, fringed: fructifications along the edge, oblong. HUDS. 574. fimbria'tus.

Gmel. fuc. 20. 2.

A foot high or more; membranaceous, diaphanous, fine red, paler by places. *Leaf* winged. *Leafits* on very short leaf-stalks, lower ones the shortest, upper ones as much as 4 inches long; oblong-spear-shaped, sometimes proliferous, alternate or opposite, edges fringed with wedge-shaped substances. GMELIN fuc. 173. Who observes that it is a native of the Indian ocean.

The figure of Gmelin quoted as above by Mr. Hudson for this plant, if it had a mid-rib would be a much better representation of the F. rubens of the English botanists than 24. 1, of the same author; I have never seen a specimen of Mr. Hudson's F. fimbriatus, but suspect that he may have only had before him a large and perfect plant of the F. rubens.

On the sea shore in Portland Island, but rare.

P. Jan.---Dec.

F. Membranaceous, forked; segments broader at the ends. LINN. cris'pus.

E. bot. 2285—*H. ox.* xv. 8. *row* 2. 6.

Between cartilaginous and membranaceous; purple or whitish, broader upwards; at the ends bluntly toothed. LINN From 2 to 6 inches high, the smaller specimens the broadest and the most membranaceous, the taller ones narrower and more cartilaginous.

Crisped Fucus. Common on the British coasts. (Not *F. crispus* of Hudson, which is *F. rubens* of LINN. TURN. E. bot. &c. E.)

membrani-fo'lius. F. Cartilaginous, flat, forked, narrow at the base, wider upwards: fructifications oval, horny imbedded tubercles, containing numerous seeds.

E. bot. 1965—*Gmel.* 7. 1. 2. *and* 3.

This plant is subject to great variations, as is evident from the figures. It is green, purple, or brownish yellow. Cartilaginous in the narrower, membranaceous and pellucid in the broader parts. *Branches* ribless, all of one height; from 2 to 4 inches high. It has been considered by our botanists as the F. ceranoides of Linnæus, but besides other differences, its want of terminating tubercles or masses of seed-vessels will always distinguish it.

F. ceranoides. Huds. and Gmel. not of Linn. On the Sussex and Cornish coasts.

Var. 2. The ends membranaceous, widened, torn. *R. Syn.* 44. *n.* 19.

Stackh. ii. 11—*Gmel.* 22. 3—*and ib.* 23.

Four inches high; membranaceous, pellucid, fine red. *Stem* flat, nervous, enlarged on each side with membranaceous rudiments, which expand into broad leaves; these leaves are hand-shaped with many clefts, waved, scolloped, ribless, irregularly divided, clefts differing in depth, generally three at the end, which is rounded. GMELIN fuc. 183.

F. lacerus. LINN. *F. Palmetta.* Gmelin. Sea shores, common.

Var. 3. Fructifications on fruit-stalks.

Found by Mr. Stackhouse on the Cornish coast, at Fowey.

Sept.

glandulo'-sus. (F. Membranaceous, flat, nerveless, linear, branched; branches alternate, decurrent, the ultimate ones bifid, and incurved; seeds immersed in the oblongo-lanceolate apices of the branches. TURNER.

Turn. hist. 38—*E. bot.* 2135.

Color bright red, strongly mixed with pink, semi-transparent; when dry, bright red. Substance flaccid, extremely tender.

Under the microscope beautifully reticulated. Plant one to two inches long.

This species has as yet been but rarely observed. One specimen is to be seen in the Banksian Herbarium, said to have been found in the English Ocean, and it has been more recently discovered among the rejectamenta of the sea at Budleigh and Torquay by Mrs. GRIFFITHS. Sept.—E.)

F. Leaves gristly, flat, ribless, branched; toothed with winged clefts: teeth callous, blunt. pinnatifidus.

Turn. hist. 20—*Stackh.* ii. 11—*E. bot.* 1202—*Gmel.* 16. 2 *and* 3—*H. ox.* xv. 8. *row* 2. 2.

Substance cartilaginous, pellucid. *Stems* roundish, many together, springing from a roundish base or fixed to the stones. *Leaves* winged, leafits opposite or alternate, blunt. GMELIN fuc. 155. *Leaf* 3 to 6 inches long, strap-shaped, below narrower and thicker, brownish red, towards the end paler and yellowish; segments blunt. HUDS. *n.* 30. It is found either very much divided into blunt segments, in branches rising from the root with a naked stem at first wide at bottom and tapering like a fern leaf; or else divided alternately and distantly into short blunt segments, not at all, or rarely subdivided; or lastly it forms a matted covering to the rock as thick tufted as a moss and not more than 1½ inch high. Its colour variable from olive to deep red, of a tender structure, and pellucid. These plants fructify in the segments, the seeds may be seen imbedded, and with high magnifiers perforations become visible. On cutting these parts the seeds are discharged in the field of the microscope. This is the only marine plant I know which has a strong odour of a peculiar kind. It has improperly been called Pepper Dulse, for it does not in the least resemble that spice, though it has a biting and disagreeably aromatic flavour. Mr. STACKHOUSE. It varies very much in size, from 1 to 6 inches high, and the leaves from nearly the breadth of a straw to the slenderness of a small pin.

F. pinnatifidus and *F. multifidus.* Huds. Rocks and stones in the sea in Devonshire and Hampshire. [Bill of Portland. Mr. STACKHOUSE. Cornwall. Sir T. FRANKLAND.]

F. (1) Cylindrical, OPAKE.

F. Cylindrical, but little branched, entirely covered with short bristle-like leaves. lycopodioides.

Turn. hist. 12—*E. bot.* 1163—*Fl. dan.* 357.

Grows upright, hardly a foot high: but little branched covered on every side like a Lycopodium with bristle-like leaves about ½ an inch long. LINN.

About 9 inches high, as thick as a quill; branches few, thinner: colour dark reddish purple, the whole entirely covered with short bristle-like leaves.

(*Club-moss Fucus.* On marine rocks near Scarborough, but very rare. Mr. TRAVIS. At Cromer. Mr. WOODWARD. The Hebrides. Rev. H. DAVIS. Bates's Island, near Hartley Pans, Northumberland. Mr. WINCH, who observed it growing on the stems of *F. digitatus*, as mentioned in E. bot. E.)

tomento'sus. F. Thread-shaped but compressed; repeatedly forked; velvety; angles at the forks rounded; the ends blunt.

Turn. hist. 135—*Stackhouse, pl.* 7—*E. bot.* 712—*H. ox.* xv. 8. *row* 2. 7—*Pet. gaz.* 4. 12.

Plant about 6 inches high, of a fine grass-green, sometimes inclining to olive. *Stem* short, roundish, hollow. Branches nearly all of a size, which is that of a small quill. When taken fresh from the sea and viewed in a bason of water, it has the appearance of a sponge; when a little drained it has a most beautiful soft, velvety appearance. When examined with a powerful microscope it appears to be a collection of tubes set in a stiff, solid membrane, without the least resemblance to the fructification of a Fucus, so that I expect it must form a new genus. STACKHOUSE.

On the Devon and Cornish coasts. On the long rock between Marazion and Penzance, plentiful. Mr. WENMAN. And at St. Ives; also at Menabilly near Fowey. Mr. STACKHOUSE. (Bantry Bay in vast abundance. Miss HUTCHINS, in TURN. Hist. E.)

Fi'lum. F. Plant thread-shaped; tough, somewhat twisted; opake.

Turn. hist. 86—*Stackh.* ii. 10—*Fl. dan.* 821—*Pet. gaz.* 91. 5.

Leaves not swimming on the surface of the water but just below it. LINN. *suec. n.* 1153. Thread-shaped, thinnest at both ends, about a line in diameter, undivided, smooth, filled with mucus, separated internally into joints, cartilaginous, brittle, often matted together, twisting spirally when dry. Colour green, blackish brown when dry, bleaching on the shore to straw colour or white. GMEL. fuc. 132. Besides the twist of the plant there is generally a spiral seam to be observed. The cross partitions are not at such regular intervals as in a Conferva. They consist of reticulated membranes with here and there shining glassy threads, beaded with air bubbles as in the air bladder of F. nodosus, and no doubt for the purpose of inflation. The fructification is principally towards the top of the plant, and consists of clusters of seeds infinitely smaller than those of the F. vesiculosus, adhering to the inside coat or swimming in its fructiferous jelly which is not formed into net-work, though evidently vascular. There are no visible openings to allow the escape of the seeds, but the plant decays at top when ripe, and the seam opens. I have seen it 17 feet long, or more; it is only brittle when dry. Mr. STACKHOUSE. The bleached specimens sometimes shew the joints extremely distinct, as is the case with one now before me sent by Major Velley, who observes with Mr. Lightfoot that the transverse septa almost reduce it to the genus Conferva.

The transverse partitions are about 6 in every inch of the plant, but not very regular.

Sea Laces. Rocks and stones in the sea, common.

P. Jan.—Dec.

F. Gristly, thread-shaped, compressed, forked, pointed. filifor'mis. HUDS. 585.

Leaf ½ a foot long, semi-transparent, reddish. HUDS. *n.* 39.

Mr. Hudson refers to no figure, and I have seen no specimen, so that this species rests entirely upon his authority.

Rocks and stones in the sea near the Isle of Walney, Lancashire. P. May—Oct.

F. Cylindrical, somewhat forked: branches parallel, blunt, tubercled; the divisions of the forks oval, not angular. bifurca'tus.

PLATE XVII. f. 1—*Turn. hist.* 7—*E. bot.* 726.

From 5 to 9 inches high. *Root* compact, cartilaginous, adhering strongly to the rocks. *Stems* undivided for the space of 3 or 4 inches from the root, when they become forked, and proceeding 3 or 4 inches higher strike out into a continued series of very short forked branches clustered together. All the stems are perfectly cylindrical, nearly of an equal size throughout, seldom larger than a crow-quill, but in general thicker than the *F. fustigiatus* and *F. furcellatus*, and are more regularly forked than any I have met with, the *F. loreus* excepted. It differs from the other forked Fuci in invariably maintaining an oval mode of growth instead of an angular one at the forks, and also in the rounded blunt termination of the branches. At the latter end of summer, on examining the forked tops of the plant, several of them appeared replete with opake substances. On making a longitudinal incision into these, I clearly discovered, by the help of a moderate magnifier, the form and direction of these vessels which proceeded from a point, or kind of puncture in the inner side of the membrane. They evidently grew in a conical shape, and resembled a Peziza. The tops of these Peziza-form vessels were regularly dilated and somewhat prominent, covered with small dark globular grains. Differs from the *F. fastigiatus* and *furcellatus*, in being less branched than either of them, but particularly in the forked extremities of the latter constantly originating in acute angles. It differs also from the *F. rotundus* of Gmelin; for besides the forks being acute in the *rotundus*, the fructifications grow in excrescences on *various parts* of the stem; and for this last reason among others, it cannot be the *F. angulatus* of that author. Mr. Hudson has named this plant the *F. tuberculatus*, but as several other Fuci put on *tuberculated* appearances in maturity, I have in conformity to its character, and mode of growth, called it *F. bifurcatus*. Major VELLEY. Stem single, long; twice or thrice forked near the top. Whole plant cylindrical, semi-transparent. *Fructifications* perfectly transparent and beautiful; consisting of red brown orbicular masses. The ends of the plant were tubercled, and on cutting off a slice the reticulated jelly and the masses of pear-shaped seeds were very visible. Its fruit is ripe in November. Mr. STACKHOUSE. (Mr. Turner remarks, in Lin. trans. v. 3. p. 199, that about Ilfracombe in the north of Devonshire this species attains a much greater height than at Portland Island, and the divisions of the frond are very numerous. E.)

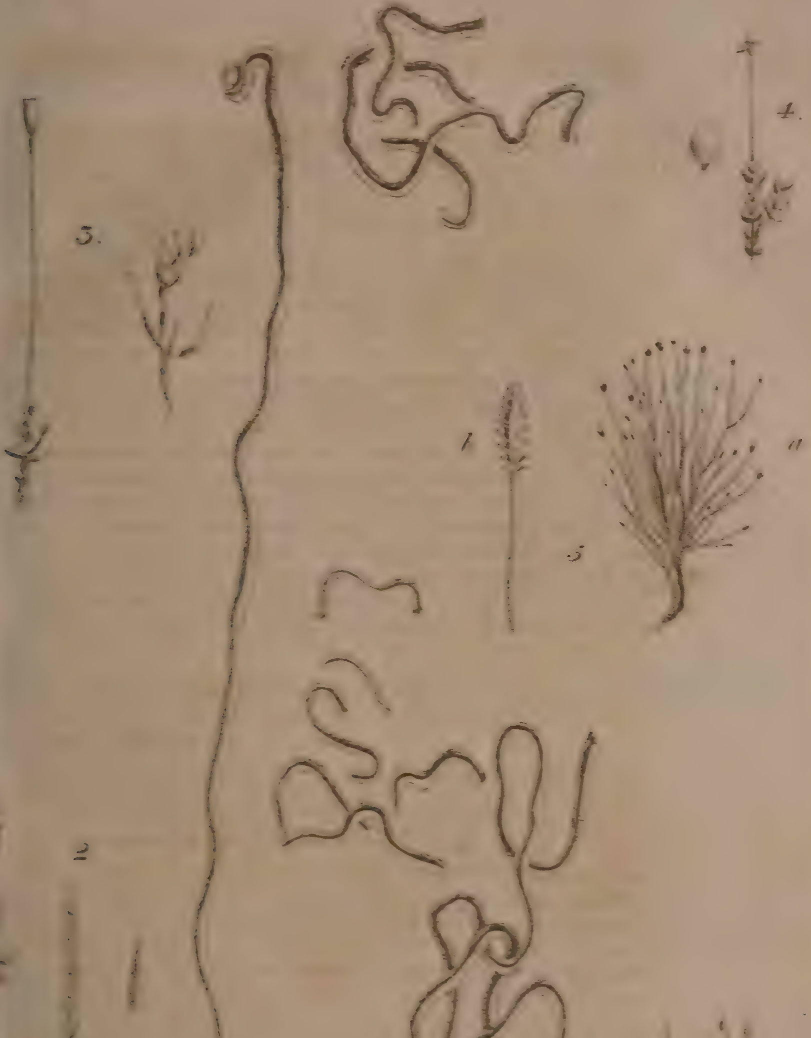
Fucus tuberculatus. HUDS. *Fucus Kali geniculato similis, non tamen geniculatus.* Ray. *Syn.* 43. 13. *F. tuberculatus.* E. bot. and Turn. hist. *F. tuberculatus.* Light. 926, is F. purpurascens.) On rocks and stones in the sea near St. Ive's, Cornwall. [Acton castle, Cornwall, in pools left by the tide, plentiful. Mr. STACKHOUSE.] (Portland Island. TURNER. E.)

P. June—Oct.

coronopifo'lius. (F. Frond cartilaginous, between flat and compressed; nerveless, much and irregularly branched, beset towards the apices with distichous, patent, nearly cylindrical ramuli, placed in alternate parcels; capsules, spherical, mucronulated, supported on very short, distichous, horizontal peduncles. TURNER.

Turn. hist. 122—*Stackh. p.* 82. *t.* 14.

From 9 to 18 inches long. Colour scarlet, pink, or sorrel, soon changing. This Fucus has been long confounded with *F.*



Ulva defracta

cartilagineus, till Dr. Goodenough and Mr. Woodward published their excellent paper in the Lin. trans. and justly claimed for it the rank of a distinct species. *F. cartilagineus* especially differs in its regularly bepinnated branches, and subpyramidal outline.

Isle of Wight, Dorsetshire, and Devon, and Cornwall, not uncommon. Near Belfast. Mr. TEMPLETON. Bantry Bay, abundant. Miss HUTCHINS. P. Aug.—Nov. TURN. hist. E.)

F. Cylindrical, forked; angles of the forks acute: fructifications wart-like, on the stem and branches. rotun′dus.

Turn. hist. 5—*Stackh. pl.* 6—*E. bot.* 1738—*Gmel.* 6. 3.

Substance soft, colour yellow green, or purplish: height about 9 inches: thickness that of packthread. GMELIN. Root solid. Its habit that of F. bifurcatus, but readily distinguishable from that by the fructifications being lateral, not terminating, and the angles at the forks being acute, not rounded. (*Round-stalked Fucus.* *F. radiatus.* Lin. tr. v. 3. E.) On the Southern coasts. At Cromer, Norfolk. Mr. WOODWARD.

F. Thread-shaped, forked, branched: branches nearly of the same length; the terminations either blunt or spear-shaped. fastigia′tus.

Turn. hist. 6—*Stackh. pl.* 6—*Velley. pl.* 4—*E. bot.* 824—*Fl. dan.* 393—*H. ox.* xv. 9. *row* 2. 9—*Gmel.* 6. 1, *the end of a branch.*

Varying in height from 3 to 12 inches, and in colour from green to olive, brown, red, and purple. Mr. STACKHOUSE. Cartilaginous, rather thick, 6 inches high, or more, colour yellowish or olive brown. *Stem* cylindrical, thickness of a small packthread, upright, branched. *Branches* rising to an equal height, forked, shorter than in the *F. furcellatus*. *Fructifications* on the ends of all the branches, egg-spear-shaped flatted vesicles, bordered by a furrow, opening at the top when ripe, and pouring out a prolific mucus. GMEL. fuc. 106. Bleaches to the colour of isinglass, and has then a horny appearance when dry. *F. lumbricalis.* E. bot. (TURN. hist. Lin. tr. iii. 20. E.) Rocks and stones in the sea.

P. June—Oct.

Var. 2. Ends of the branches short, blunt.

Var. 3. Uppermost branches longer and more tapering to a point.

Fl. dan. 419—*H. ox.* xv. 9. *row* 1. 4—*Gmel.* 6. 2.

Six inches high; cartilaginous, opake, brown turning black; the young plants reddish brown or greenish. *Stem* single, splitting at about an inch from the root, or else rising in two or more separate stems from its origin. *Branches* shaped like a worm, filled with slime containing granulations. GMEL. 108. Approaches very nearly to *F. fastigiatus*, but longer, and the *branches* thicker. LINN. *F. fastigiatus* and *furcellatus* are one and the same species. I have a specimen in my possession, in which they both grow from one root, and one branch is divided with *furcellatus* on one part, and *fastigiatus* on the other. *F. fastigiatus* I am inclined to think will be found to be the male, and *furcellatus* the female plant. Mr. WOODWARD. The admirable figures of Mr. Stackhouse and Major Velley fully illustrate Mr. Woodward's observation. If we may suppose that Gmelin and Lightfoot have been mistaken about the blunt ends of the branches pouring out a prolific mucus, then it will follow that these are shoots which have not yet put forth the strap-spear-shaped fructification: but if they are right, Mr. Woodward's conjecture will be confirmed.

F. furcellatus. Huds. ed. ii. p. 589. Rocks and stones in the sea, and on the sea beach. P. Jan.—Dec.

Major Velley informs us that Dr. Smith thinks the real F. furcellatus of Linn. has not been found on our coasts. See VELLEY's Marine Plants; but this supposition is irreconcileable with the opinion of Linnæus himself in Sp. pl.

gigarti'nus. F. Cartilaginous; thread-shaped but compressed; forked: fructifications globular, on fruit-stalks; those at the end with a thorn-shaped segment beyond them.

Turn. hist. 28—*E. bot.* 908—*Linn. Tr.* III. 17. 3. 4.

A hand's breadth in height. Stiff, upright, pellucid, thread-shaped but compressed, coloured; branches but few from the sides in proportion to the fructifications. *Fructifications* globular, about the size of rape seed, sitting on a short branch resembling a fruit-stalk, which sends out a little branch under the globule, and longer than it. LINN. *Globules* of fructification dimpled at the point, which is probably the part destined for the escape of the seeds. *Seeds* egg-shaped; imbedded in a thick mucus the colour of the pulp of a pomegranate.

(*Grape-seed Fucus.* On the coast of Cornwall, originally found there by the honourable Dr. Wenman of All Soul's College, Oxford; and since by Dr. Macullock, in Mount's Bay, near Newlyn. E.)

F. Somewhat compressed, much branched: bulbs immersed but projecting from the lower part of the stem. nodicau'lis.

Stackh. ii. 11—*E. bot.* 2169.

About 6 inches high. *Root* discoid, shooting out immediately into numerous principal branches which have sometimes the fleshy bulb imbedded, at other times there are smaller conical roots at each side which send out branches. Upper parts of the plant much branched. Olive coloured when young, reddish when fully grown. The bulbs are evidently intended for one mode of propagation. When torn off by the waves, a branch from the principal stem often resembles an onion sprouting up. It is of a spongy soft texture, which added to the convenience of its imbricated bark for receiving seeds, causes it to be so infested with other Fuci, Confervæ, &c. as to be quite overwhelmed, and it is also the favorite residence of many Zoophites. STACKHOUSE.

F. granulatus. Linn. E. bot. On the coasts of Cornwall: at Penzance and at Acton Castle.

(F. Frond pale red, somewhat cartilaginous, thread-shaped, repeatedly forked; its segments spreading, sharp-pointed, beset with scattered thorn-like processes; tubercles scattered, sessile globular. acicula'ris.

Turn. hist. 126—*E. bot.* 2190.

Several fronds 2 or 3 inches long, arise from one small callous base, occasionally somewhat flattened. Colour purplish red, white within.

Needle-branched Fucus. Cornish shore. P. RASHLEIGH, Esq. Belfast. Mr. TEMPLETON. Turn. and E. bot. E.)

F. (2) Cylindrical, PELLUCID.

F. Cartilaginous, much branched; branches thread-shaped, rarely subdivided: leaves cylindrical, blunt, slender at the base, scattered. dasyphyl'lus.

Turn. hist. 22—*E. bot.* 847—*Linn. Tr.* ii. 23. 1. 2. 3. *at p.* 241.

From 4 to 6 inches high; bright red, pellucid, rather tender and gelatinous. *Branches* from the root very numerous, thick as a small packthread, more leafy upwards. *Leaves* from 1 to 4 lines long, about ½ a line broad. *Fructifications* minute dark red tubercles, sitting on the lower part of the larger branches, rarely on the leaves. Mr. WOODWARD.

Found by Mr. WIGG, at Cromer on the coast of Norfolk, also on the beach at Yarmouth. A. June.

ova'lis. F. Compressed, branched: leaves oval, very entire: HUDS. stem thread-shaped; branches forked: leaves oblong, round, on leaf-stalks. LIGHTF.

Turn. hist. 81—*E. bot.* 711—*Gmel. fuc.* 18. 4.

Soft, but cartilaginous, pellucid, white, about 2 inches high. *Stems* numerous, full 2 inches high, cylindrical, branched on every side. *Branches* like the stems. *Leaves* somewhat winged, leafits alternate. *Fructifications* terminating, swelling with seed-bearing granules. GMELIN fuc. 162. *Leaves* oblong-egg-shaped, distended, not flat.

F. ovatus. Huds. ed. i. 468. *F. vermicularis.* Lightf. 958. GMEL. Sea rocks and stones near Scarborough, Yorkshire, and Christ Church, Hampshire. HUDS. In basons of water on the sea-rocks on the little isles of Jura. LIGHTF. (Very plentiful in Bantry Bay. Miss HUTCHINS. TURN. hist. Does not grow at Scarborough; possibly a var. of F. pinnatifidus may have been taken for it. Sir T. FRANKLAND. E.) A. May—Oct.

G. (1) Capillary, *opake.*

aculea'tus. F. Thread-shaped, compressed; very much branched; branches set with awl-shaped, alternate, upright prickles.

Turn. hist. 187—*Stack.* 8—*Fl. dan.* 355—*H. ox.* xv. 9. *row* 1. 4—*Gmel.* 12.

One to 2 feet long. *Root* thick, in some degree globular, from whence 2 or 3 principal stems proceed, which throw out branches on each side in an alternate series, 2 or sometimes more growing from the same knot or joint; and these also are subdivided into long slender thread-shaped but flattened leaves, each of which, as well as the second branches, are armed with short sharp-pointed prickles. Stems thread-shaped. Plant olive green. Major VELLEY. Stem crooked, twisted, wiry, the size of a small quill, solid, shining, smooth. *Branches* set with soft prickles pointing upwards. *Fructifications* in the forks of the lower branches, wart-like, irregular, granulated, yellowish, studded with brown. STACKHOUSE. Nereis Britann. p. 25. We are indebted to this gentleman for the discovery of the fructification, which he found in winter, and he suspects that many other species are only to be found in fruit during the winter months.

Rocks and stones in the sea, Devonshire, Cornwall, and Northumberland. P. May—Oct.

Var. 2. *muscoides.* Huds. 590. Thread-shaped: branches very numerous, diverging, zigzag.

Rocks in the sea. Yorkshire, Northumberland, but not common. P. May—Oct.

Var. 3. *caudatus.* Stalks cylindrical, branches more subdivided. LIGHTFOOT 926.

This has been well compared by Gmelin to the tail of a sorrel horse, which in its recent state it much resembles, the green hue arising from its decay. It is much more glutinous than F. aculeatus.

Rocks off the Bill of Portland. Mr. STACKHOUSE.

F. Thread-shaped, much branched: branches alternate; little branches crowded, hair-like; tubercles egg-shaped, distant, within the substance of the branches. purpuras′-cens.

Turn. hist. 9—*E. bot.* 1243—*Velley pl.* 2; (but less branched and the ultimate branches less hair-like than in my specimens. The figure seems to have been drawn from a young plant.)

The *tubercles,* (which are yellow and oval when ripe,) when held between the eye and the light, appear transparent, and when nearly ripe have a red spot in the centre, which we suppose to be a cluster of minute seeds. LIGHTFOOT. *Root* fibrous. From 6 to 12 inches high; rather gristly, but tender; green when young, purplish in maturity, in the former case nearly opake, in the latter more transparent.

Purplish knotted Fucus. F. tuberculatus. LIGHTF.
Rocks and stones in the sea; not uncommon. P. June—Oct. E.

F. Gristly, semi-transparent, hair-like, branched, matted together. plica′tus.

Turn. hist. 180—*Stackh.* 7—*E. bot.* 1089—*Gmel.* 14. 2—*Pluk.* 184. 2—*Fl. dan.* 408.

About 6 inches high; horny, tough, orange red, rigid and brittle when dry. *Stems* very numerous. crowded together at the root, cylindrical, serpentine, little branches from the sides, and forked at the end. GMEL. fuc. 142. Sometimes only 3 or 4 inches high; fine dark pinky purple, readily bleaching to a fox colour, transparent in its bleached state, scarcely so when in full colour. Ends of the branches either forked or entire. Gmelin calls his plant orange red, and Plukenet's is said to be gold colour; ours is like isinglass in the bleached state, in which it usually presents itself. (*Fructifications* small, globular, lateral, solitary, or in clusters. E.)

Matted Fucus. Rocks and stones in the sea. A. May—Nov.

confervoi'des. F. Gristly, thread-shaped, branched: branches very long: fructifications lateral, globular, sitting.

Turn. hist. 84. (85?)—*Stackh.* 8—*Fl. dan.* 650—*E. bot.* 1668. (1222?)—*Gmel.* 13.

Two feet high, or more; cartilaginous, yellowish green or brownish purple. *Stem* upright, thickness of thin packthread. *Branches* very long, often pointing 2 ways, often alternate, often without any regular order. Small scattered globules on the sides of the branches. GMELIN. Tender, transparent, rose or olive colour, or both. From 6 to 24 inches long. *Branches* of the same thickness throughout. *Fructifications* scarlet semi-globules sitting on the sides of the branches without any regular order. The branches are often much entangled by the action of the waves, but it may be easily distinguished from F. plicatus, even in its entangled state, for that plant is very horny and stiff, and appears to be matted and entangled, not by the waves, but by its peculiar mode of growth. STACKHOUSE. Nereis Britann. p. 27. *Fructifications* sometimes in clusters, rather conical than semi-globular, with an aperture at the apex, out of which may be pressed a thick pulpy fluid, replete with extremely minute seeds.

Whip-cord Fucus. *F. flagelliformis.* Lightf. 928. E. bot. TURNER. *F. verrucosus.* Huds. Stack. and Bot. iii. *ed.* ii. Rocks and stones in the sea. Sussex, Hampsh. Devonshire and Cornwall. [At Menabilly and Fowey. Mr. STACKHOUSE.] P. June—Oct.

capilla'ris. F. Thread-shaped, very much branched: branches either opposite or alternate: little branches awl-shaped, short; (jointed: seeds imbedded in the little branches. E.)

Turn. hist. 31—*E. bot.* 2191.

Colour, a beautiful, transparent pink, in a dried state darker and more approaching to scarlet; turning in decay to a dirty white. *Substance* very tender, slippery, and almost gelatinous; in decay the ramuli breaks into very small oblong granules; TURN. hist. E.)

(*Red Capillary Fucus.* Anglesea. Rev. H. DAVIES.

E. bot. On marine rocks, near Scarborough, but very rare. Mr. TRAVIS. E.)

Stones in the sea near Sheerness, Isle of Sheppey, Devonshire and Cornwall. P. April—Oct.

F. Thread-shaped, very much branched; branches crowded with shoots; the ends rolled in: ultimate branches awl-shaped. incur'vus.

Turn. hist. 11—*Gmel.* 11. 1—*E. bot.* 1042.

Root spongy, irregular. *Branches* crowded with shoots, but not tiled. Colour blackish purple. Mr. STACKHOUSE. *Stem* a foot high, or more, branched. *Branches* set on every side with crooked sharp bristles, all pointing upwards, of different sizes, sometimes ½ an inch long. *Fructification* consists of globules sitting, or on foot-stalks, on the sides or in the forks of the branches. GMELIN fuc. 127. Our specimens not more than 4 or 6 inches high; rigid, opake, black, but when viewed against a strong light the younger branches appear of a brownish red.

(*Curved or Pine Fucus. F. pinastroides.* GMEL. TURN. hist. E. bot. Lin. tr. v. 3. 222. E.)

Rocks and stones in the sea. Sussex. [Thrown in thick lumps on the shore at Weymouth after a storm, and also on the coasts of Cornwall. Mr. STACKHOUSE.] P. Jan.—Dec.

F. Very much branched; branches and their subdivisions thread-shaped, scattered: leaves awl-shaped, nearly alternate: fructifications in bunches: capsules with 8 seeds. Mr. WOODWARD. subfus'cus.

Turn. hist. 10—*Linn. tr.* 1. 12. *at p.* 134—*E. bot.* 1164.

About 6 inches high, the size of small twine. *Root* solid. *Branches* numerous, irregular, crowded upwards, nearly as large as the stem. *Capsules* in the bosom of the leaves, on short fruit-stalks, about the size of a small pin's head; pale, semi-transparent. Mr. WOODWARD.

(*Brownish Fucus. F. variabilis.* Lin. tr. iii. 220. Cromer on the coast of Norfolk. Mr. WIGG. Also in Scotland and Cornwall. E.) A. Winter.

F. Thread-shaped, much branched: branches alternate, rolled in: little branches very short, many-cleft: fructifications oblong, on fruit-stalks. HUDS. 590. amphib'ius.

Turn. hist. 109—*E. bot.* 1428—*Ray. Syn.* 2. 6, *at p.* 60.

About an inch high, woody, livid or greenish, to blackish. *Stem* soon becoming branched. *Branches* dividing and subdividing, alternate, the ultimate branches extremely fine. On the sides of the branches there are short teeth, which swell and coil up ; they contain slime, and seem to perform the office of fructification. GMEL. fuc. 135.

Amphibious Curve-pointed Fucus. F. scorpioides. Huds. *ed.* i. 471. Rocks and stones in the sea, and in salt-water ditches and salt marshes, (frequently attached to the roots of other marine plants. TURNER. E.) P. July—Sept.

varia'bilis. F. Thread-shaped, much branched, rough: branches tiled, hair-like: little branches very short, bundled, finely toothed. HUDS. 591.

Leaf ½ foot long, stiffish, opake, black. *Branches* very numerous. *Little branches* with many clefts, toothed, teeth blunt. HUDS. *n.* 62. (The terminating pencil-like bundles of fibres are very characteristic. E.)

F. confervoides. Huds. Not *F. confervoides.* Gmel. *syst. nat.* and Jacq. coll. iii. 14. 1. Stones and rocks in the sea, in Yorkshire and Cornwall. P. May—Oct.

lano'sus. F. Hair-like, forked, much branched, rough. LINN. Fructifications tubercled, lateral. HUDS.

A span high, resembling black wool. Rough with dots placed nearly in whirls and only visible when magnified. LINN. This plant does not appear to have been found lately, it stands therefore solely on the authority of Mr. Hudson.

Rocks and stones in the sea. Isle of Walney, Lancashire. P. July—Oct.

G. (2) Capillary, PELLUCID.

Thrix. F. Hair-like, tubular, unbranched: many threads from the same base.

Stackh. ii. 12.

From 2 to 6 inches high, not thicker than a pin, smallest at bottom with a spiral seam. Its top is frequently found decaying and then ends in filaments which are continued through the plant. These filaments are pellucid, with transverse partitions and dark granules, which may be the seeds. I think from its fructification that it is not properly a Fucus.

Mr. STACKHOUSE; who first found it at Penzance, and at Acton Castle.

(F. Cartilaginous, filiform, cylindrical, repeatedly pinnated; branches and ramuli all opposite and capillary. vir′idis.

Turn. hist. 97—*Fl. dan.* 886—*E. bot.* 1669—*Stackh. p.* 112. *t.* 17.

Two to three feet long, near the root of the thickness of a sparrow's quill, thence gradually diminishing. Colour in the fresh plant a rich orange tinged with brown, which is so fugitive that by a few minutes exposure to the air it becomes a light verdigris green. It is never glossy, semi-transparent. Substance cartilaginous, rather stiff, and without the least sliminess. Whole appearance beautifully feathery and capillary. It speedily becomes flaccid and whitish.)

F. Thread-shaped, pale, pellucid, much branched: branches hair-like: fructifications lateral sitting globules. tenuis′simus.

Turn. hist. 100—*Linn. tr.* iii. 19—*E. bot.* 1882.

About 4 inches high; very slender and hair-like. Branches 2 or 3 rising together from the same point. Fructifications 1, 2 or 3 together, frequently 2, and on opposite sides of the branch. (Plant flesh-coloured. Branches and leaves tapering at each end. E. bot. E.)

Slender tapering Fucus. Ulva capillaris. HUDS. On the Southern coasts, near Christ-church, Hants. At Weymouth. Near Margate. A. July—Sept.

F. Stem thread-shaped, much branched: leaves like bristles: fructifications globular, alternate, on fruit-stalks opposite the leaves. asparagoi′des.

Turn. hist. 101—*Linn. tr.* ii. *t.* 6, *at p.* 29—*E. bot.* 571.

About 6 inches high, bright red, extremely tender. Leaves red, or greenish, scarcely thicker than a hair. Globules of fructifications the size of poppy seed, on short fruit-stalks equal in length to the capsule, and the whole 1-3d the length of the leaves. WOODWARD in Linn. tr. ii. 29.

Found by Mr. WIGG on the beach at North Yarmouth. (On rocks and stones at Cromer. Mr. WOODWARD. About Yarmouth. Bantry Bay. Miss HUTCHINS. TURN. Hist. E.) A. June.—Sept.

cor′neus. F. Gristly, thread-shaped, compressed, much branched: branches alternate, from 2 opposite lines; winged: segments opposite, bristle-shaped: fructifications roundish on fruit-stalks.

E. bot. 1970—*Gunn.* ii. 2. 8.

From 3 to 7 inches in height; dark red, sometimes green, semi-transparent. Segments horizontal, very short, rather strap than bristle-shaped.

Horny Pinnate Fucus. Var. 2. Plant smaller, branches less regular and broader in proportion to their length.

(*Green Bushy Fucus.* This new species was first observed by Sir T. Frankland, (who then took it for a Conferva,) on rocks at Scarborough. It has since been found at Yarmouth, Brighton, and Bantry Bay. TURN. Hist. E.)

Gmel. 15. 3.

Grows in matted clusters. Mr. STACKHOUSE.

F. sericeus. GMELIN. p. 149. *F. nereideus.* LIGHTF. Both sorts found on our Southern and Western coasts. May—Oct.

Wig′ghii. (F. Sub-gelatinous, cylindrical, filiform, much and irregularly branched, every where beset with setaceous, mostly simple, scattered ramuli, swelling in their centre into lanceolate capsules, and composed of branched, jointed fibres. TURNER.

Turn. hist. 102—*Linn. tr.* v. 6. *t.* x—*E. bot.* 1164.

Frond from 3 to 8 inches long, as thick at its origin as a blackbird's quill, thence attenuated to a long acuminated point. Fructification on the ramuli which swell in their centre, of a darker colour than the rest of the frond. Colour a pale transparent pink; darker when dry; but if kept long turning to dirty yellowish white. Substance slippery and tender. Under a powerful microscope the surface of the frond appears reticulated with regular square meshes. The setaceous ramuli readily distinguish it from its congeries.

This very rare and novel species was discovered by Mr. LILLY WIGG. It has been found occasionally on the Yarmouth beach among the rejectamenta of the sea. Bantry Bay, Miss HUTCHINS, Brighton. Mr. BORRER. One specimen, at Folkstone. Miss EVERETT. TURN. hist. E. A. July—Sept.)

fili′cinus. F. Leaves gristly, compressed, blunt, mostly triply winged; segments horizontal, blunt. HUDS. *ed.* ii. 586.

(*F. filicinus.* Lightf. 955, is F. pinnatifidus.) Rocks and stones near Walney, Lancashire. A. May—Oct.

I believe it is not certainly known, what plant Mr. Hudson here intended. Mr. Lightfoot thinks it must be a var. of the F. pinnatifidus, the plant being larger and the segments wider; but Dr. Goodenough has lately informed me that it is a var. of the F. corneus.

F. Gristly, thread-shaped, compressed, generally triply winged; segments awl-shaped, nearly upright, HUDS. 586. pinna'tus.

Leaf 3 inches long, red, sometimes doubly winged, pointed; segments opposite, very short. HUDS. This stands entirely on the authority of Mr. Hudson. Dr. Goodenough thinks it can be nothing but the F. corneus.

Rocks and stones in the sea, Cornwall, Devonshire, Sussex, and Scarborough. A. May—Oct.

F. Gristly, thread-shaped, somewhat forked; branches bristle-shaped, distant, mostly pointing one way: fructifications lateral, roundish, sitting. HUDS. 588. al'bidus.

Jacq. coll. iii. 14. 1—*Gmel.* 14. 1—*Turn. hist.* 842.

From 2 to 12 inches high or more. *Stem* cylindrical, cartilaginous, but tender, very pellucid, set with numerous small dots with a perforated appearance; branches from near the root; resembling the stem, nearly as thick, but very short; divisions and sub-divisions of the branches finer and finer. *Branches* often on one side, sometimes on both; sometimes forked, generally solitary. *Warts* or capsules, lateral, sitting, frequent, pellucid, solitary, or in pairs, distant or crowded, varying in size, open at the top. GMELIN 136.

(Mr. D. TURNER suspects this may prove to be the same plant as *F. confervoides* of WITH. E.)

Rocks and stones in the sea. [At Cromer. Mr. TURNER.] P. June—Oct.

F. Gristly; compressed; more than doubly compound winged; segments strap-shaped. cartilagi'neus.

Turn. hist. 124—*E. bot.* 1478—*Mill. illustr.*—*Gisek.* 25—*Gmel. fuc.* 17. 2, *the very end is the only part which gives any tolerable idea of the ramifications.*

Stem depressed, very much branched. *Branches* alternate, very long, alternately winged, with an odd one at the end. *Wings* cut into winged clefts; segments thick, awl-shaped and fructifying at the ends. This plant is often 3 feet high, its substance gristly, its colours very elegant, but variable, reddish green, brownish red, yellowish, and all these often existing in the same individual plant. GMELIN fuc. 158.

F. coronopifolius. Lin. tr. E. bot. Rocks and stones. Cornwall. STEVENS *in R. Syn.* 586. P. Jan.—Dec.

obtu'sus. F. Gristly, thread-shaped, compressed, branched, doubly winged; segments club-shaped, with tubercles at the end.

Turn. hist. 21—*Velley pl.* 3—*E. bot.* 1201.

From 3 to 5 inches high; the stem as thick as packthread, of the colour of isinglass, but the outer coat of the branches and their segments have a beautiful pink colour. *Fructification* consists of oblong egg-shaped grains or seeds within the substance of the terminating tubercles. The plant has a strong smell of violets. It frequently grows upon the edge of the Fucus filum. VELLEY'S marine plants.

Stones and rocks in the sea, near Hastings, Sussex, and on the Devonshire coast. A. May—Oct.

coccin'eus. F. Gristly, compressed, much branched: little branches alternately pointing one way: fructifications globular, lateral. HUDS. 586.

Stackh. ii. 13—*Turn. hist.* 59—*E. bot.* 1242—*Clus.* ii. 250. 1—*Ger. em.* 1573. 9—*Park.* 1289. 2—*Gmel.* 16. 1—*Pluk.* 48. 2.

Substance membranaceous, gristly, fine red, often with some white or yellow intermixed, very rarely green; about 4 inches high; (sometimes much less.) *Stem* half a line in diameter, cylindrical but depressed, upright, soft, flexible, soon becoming flat. *Branches* the large ones alternate, long, exactly similar to the stem. Secondary branches winged. *Wings* composed of thick awl-shaped segments, somewhat crooked, from 2 to 5 lines long. *Fructifications* globular, black, sitting on the sides of the stem or branches; now and then one appears with a short fruit-stalk. GMELIN.

Pectinated Crimson Fucus. *F. cartilagineus.* Huds. ed. i. 473. F. *plocamium.* Gmelin and Lightf. Rocks and stones in the sea, very common. P. June—Oct.

F. Rather membranaceous than gristly: spear-shaped; doubly winged; feather-like: stem thread-shaped; compressed; branched. LINN. Fructifications on fruit-stalks, globular, radiated. HUDS. 587. plumo'sus.

Turn. hist. 60—*Stackh. pl.* 13—*E. bot.* 1308—*Gunn.* ii. 2. 15—*Fl. dan.* 350—*R. Syn.* 2. 5, *at p.* 60.

About 5 inches high, purple red. *Stem* depressed, very much branched, branches irregular, tiled; leafits doubly winged, with soft, undivided, crooked threads, thickest at the end and with something of a jointed appearance. GMELIN fuc. p. 152. Resembles F. *abrotanifolius*, but is winged like a *Hypnum*, and small. LINN. In its beautiful colour, its delicate texture and its transparency it agrees with the F. coccineus, but differs from it in the ultimate leafits being placed regularly on each side the branches, whilst in the former they are only on one side, and generally 3 together.

Feathery Fucus. Rocks and stones in the sea, very common. P. Aug—Oct.

F. Gristly, thread-shaped, branched: branches bristle-shaped, bearing fruit, scattered: fructifications scattered, on fruit-stalks, oblong. HUDS. 587. peduncula'tus.

Turn. hist. 188—*E. bot.* 545.

Leaf 9 inches long, semi-transparent, yellowish. *Branches* very simple, long. *Fructifications* numerous, small, brownish. *Fruit-stalks* long. HUDS. *n.* 49. (The almost inseparable companion of Conferva villosa, observes Mr. TURNER. E.)

Rocks and stones in the sea. Portland island. [Yarmouth. Mr. WIGG.] A. July—Sept.

UL'VA. *Frond* membranous or gelatinous: *Seeds* solitary, scattered throughout its substance, under the cuticle. Lin. tr. 3. 50. and E. bot. E.)

U. Globular, solitary, spongy, brownish. HUDS. 572. pisifor'mis.

Plant from the size of rape seed to that of a pea, spherical, with an interwoven net work, pulpy, brownish green. HUDS. *n.* 23.

Ditches between Greenwich and Woolwich.

A. March—Aug.

prunifor'mis. U. Nearly globular, solitary: green; succulent within, (clothed with oval-shaped filaments. *E. bot.* E.)

E. bot. 968—*Wieg. obs.* 2. 4.

Of the size and shape of a plumb, sometimes rather flatted on one or other of the sides; the rind of the thickness of the rind of a plumb; within full of a viscid pulp, containing either in the middle or a little on one side some grains just visible. Mostly loose, but sometimes adhering to jointed Confervas. Linn. *Suec. n.* 1159. Of the size of a sloe or bullace. Huds. 572. Mr. Stackhouse observes, and I think with justice, that neither this nor the preceding fall properly under the genus Ulva.

Plum Laver. (In turf pits near Yarmouth. Mr. D. Turner. E.) Ditches and pools, and the alpine lakes of Westmoreland. On aquatic plants. A. May—Oct.

dia'phana. U. Gelatinous, pale yellowish, pellucid, somewhat cylindrical, with numerous branches of various sizes. Woodward in *E. bot.* 263.

E. bot. 263.

Very fleshy and juicy, the surface smooth; colour varying from a very pale brown almost like that of wet sea sand, to a clear yellow; and then looking just like barley sugar. The whole substance abounds with innumerable minute seeds. On the sea coast in various places. Mr. Woodward in *E. bot.*

Ulva flavescens. Huds. Isles of Anglesea, and Walney. Huds. Near Sheerness. [Drawn out of the sea by a Trawle Net at Lowestoffe. Mr. Woodward.]

planta-gin'ea. (U. Fronds several, membranous, simple, oblong, obtuse, flat, entire, tapering at the base, minutely warty, brown.

E. bot. 2136—*Dill. Musc. t.* 9. *f.* 4.

From one small cartilaginous base arise several upright undivided fronds, from 3 to 6 or 8 inches long, of a dull olive brown, an inch broad. *E. bot.*

Plantain-leaved Laver. Cromer coast, Mr. Turner; Southwick, Sussex; Mr. Borrer. *E. bot.* E.)

umbilica'lis U. Flat; circular; sitting; target-shaped; leather-like.

E. bot. 2286—*Dill.* 8. 3—*Lob. ic.* ii. 247. 2—*J. B.* iii. 813. 4.

Somewhat hollow. Border indented; fixed only by a point in the middle to the substance on which it grows; of a dark sooty colour, shining. Uniform, membranaceous, pellucid, very tender, often gelatinous. *Leaf* flat, varying much in breadth. Gmelin. 214. Circular, concave, fixed by the centre as by a root, and firmly adhering to the rocks. From 4 to 12 inches broad; smooth, shining, often torn or perforated by the agitation of the sea; dull brown, changing to dull purple when dry. Dill. 45. This is eatable, but it requires baking for some hours to make it tender.

Peltate Laver. On low sea beaches, as near Sheerness. Dill. On rocks and stones at low water. Huds. 567.
P. Jan.—Dec.

U. Flat; kidney-shaped; sitting; scored crosswise. pavo′nia.

E. bot. 1276—*H. ox.* xv. 8. *row* 1. 7—*Ellis. cor.* 33. *c.*

Edges of the leaf and of the bands fringed with very fine hairs. Huds. *n.* 1. Seldom 4 inches high; whitish dull green. Expanding upwards like a fan. Kidney-shaped. Surface barred with cross lines filled with corpuscles resembling seeds. Gmelin. fuc. 170. Fructifications at the thin outer edges; first observed by Mr. Stackhouse.

Turkey-feather Laver. Rocks and stones in the sea. Rocks at low water-mark at the Look-out, Weymouth. Mr. Stackhouse. P. Jan.—Dec.

(U. Frond somewhat cartilaginous, brown, compressed, repeatedly branched, somewhat palmate: seeds irregularly scattered, root smooth. multi′fida.

E. bot. 1913.

Frond olive-brown, 4 or 5 inches high, thick and leathery; destitute of concentric lines. Seeds scattered irregularly in small round clusters.

Laciniated Brown Laver. Gathered by Mr. Turner in August, on the beach at Yarmouth, of rare occurrence. E. bot. E.)

(U. Frond round gelatinous, repeatedly forked, reddish: its ultimate segments flattened, lanceolate, cloven. furcella′ta.

E. bot. 1881.

From 1 to 3 inches high; seeds sparingly scattered under the cuticle, brown, globular, large. Whole plant a pale brownish red, sometimes greenish.

Reddish Forked Laver. On submarine rocks and stones at

Sheringham Norfolk. Mr. Turner. At Southampton, Miss Biddulph. E. bot. E.)

monta'na. U. Flat, scarlet, growing on the ground, blood-coloured. Lightf. 973. Lobes finely granulated. E. bot. E.)

E. bot. 2193.

Leaves without visible roots, many together supporting each other, about 2 or 3 inches high and as much in breadth, variously sinuated, leathery, but friable. Lightf. 973. Although Mr. Lightfoot has arranged this as an Ulva, I have some doubt if properly so. I have not seen it, but hope the botanists in Scotland will give it their attention, and assure us of its proper place in the system.

Red Mountain Laver. Among grass and moss on the sides of mountains. Aug.

lanceola'ta. U. Egg-spear-shaped, flat.

Dill. 9. 5.

Leaves a palm in length or more ; very thin, smooth, pale green. Dill. 46.

On rocks near Llanfaethly in the Isle of Man. Dill. P. Jan.—Dec.

Lin'za. U. Plant oblong : blistered.

Fl. dan. 889—*Dill.* 9. 6.

Bright green, thin, the folded edge even, the open edges indented and curled. Dill. *in R. Syn.* 62, *n.* 3, *and musc.* 46. Five or 6 inches long, about an inch wide, doubled lengthwise. Lightf. 973.

On large stones and rocks in the sea ; and in ditches near Sheerness. P. Jan.—Dec.

latis'sima. U. Oblong ; flat, waved ; membranaceous ; green. Linn. Somewhat sword-shaped, brown. Huds. 567.

A very long and very broad membrane. Linn. *suec. n.* 1156. *Leaf* 1 to 3 feet long, 2 to 8 inches wide, thin, shining. Huds. Of no regular shape, extremely thin. Mr. Woodward.

U. fusca. Huds. 567. Rocks and stones in the sea near Sheerness, in the Isle of Sheppey. [Yarmouth Haven. Mr. Woodw.] A. May—Oct.

U. Leaves flat, purple; the extremities widening, jagged, and waved. LIGHTF. 974. lacinia'ta.

Lightf. 33, *at p,* 974.

Seeds minute, numerous, like grains of a red powder, lodged in various parts of the substance. Greatly resembles the Fucus laciniatus, but the fructifications are different. LIGHTF.
Sea shore, on the coast of Jura. Aug.

U. Hand-shaped; proliferous; membranaceous; segments narrower towards the base. Lactu'ca.

E. bot. 1551—*Dill.* 8. 1—*Lob. obs.* 647. 1, *and ic.* ii. 247. 1 —*Dod.* 477. 2—*Ger. em.* 1566. 2—*Park.* 1293. 9—*J. B.* iii. 801—*Matth.* 1136—*Ger.* 1377.

Leaves incorporated, pale, hand-shaped, each segment growing out again into hand-shaped leaves; *segments* waved, inversely egg-shaped, blunt, transparent. LINN. A foot high or more; thin, pellucid, fine green, upright or reclining. DILL. 42.
Oyster-green. Green Sloke. Scotland. On rocks, stones, and shells in the sea, and salt water ditches. In the Avon below Bristol, very large and perfect.

Var. 2. Tender, slippery.

Dill. 8. 2.

Fresh-water Laver. Ditches and pools in the meadows about Newington, near London. DILL.

(U. Frond tubular, very much branched, somewhat compressed, green: ultimate branches scattered, extremely numerous, sharp-pointed. ramulo'sa.

E. bot. 2137.

Fronds numerous, beset with innumerable short scattered branches, of an awl-shape form. Colour a fine green: under the microscope beautifully reticulated, or besprinkled with numerous dots, probably seeds. E. bot.
Green Sharp-branched Laver. Found by Miss HUTCHINS in Bantry Bay, Ireland. E. bot. E.)

U. Stiffish, horned, growing on the ground. cornu'ta.

Dill. 10. 13.

Three or 4 inches long, irregularly divided into horn-shaped branches; surface various, furrowed and scored, otherwise smooth, flatted, pale green. DILL. 52. Is it not a variety of *Jungermannia pinguis?* HUDS. 652. Certainly not an Ulva, but until it shall be found again it is better not to risk further error by a hasty removal. I am inclined to think that Dillenius was right in considering it as a Tremella.

On the ground in Enfield Chace, near Southgate. Dill. On the ground in a moist sandy soil near Leith. Mr. Yalden *in Fl. Scot.* March, April.

incrassa′ta. U. Flat, indented-toothed, green, the edge thicker. Huds. 572. (Clothed with tufted, jointed filaments. E.)

E. bot. 967—*Dill.* 10. 10—*Vaill.* 10. 3.

Gelatinous, slippery, green; grows in the water and on the edges of small ditches. Crowded, irregularly divided, swollen, but not round, the segments being flattish. Dill. 51. (Clothed with tufted jointed filaments, according to the accurate observation of Dr. Smith in E. bot. where this plant is fully delineated. E.)

Thick Laver. In the ditches of a field near Chichester, Sussex, without the East gate. Dill. Selsey Island, Sussex, between Greenwich and Woolwich, near Doncaster, about Spalding and elsewhere in Lincolnshire, Huds. On the stalks of Horsetail in a ditch on Sheep's Green. Relh. *n.* 1087. A. March—Oct.

dichot′oma. U. Flat, forked, green.

E. bot. 774—*Lightf.* 34, *at p.* 975.

Leaf about 3 inches long, flat, greatly dilating upwards and forking into branches. *Branches* an eighth or a tenth of an inch broad; cloven at the ends. Colour pale green, substance membranaceous, very thin, pellucid, in the microscope reticulated. *Seeds* small, brown, scattered through the substance of the leaf. Lightf.

Rocks and stones on the sea shore at low water. Isle of Walney, Devonshire. Cornwall and Sussex. Basons of water among the sea rocks, about Leith and New Haven. P. Jan.—Dec.

Var. 2. Brown; segments narrower.

This sort also is common in Cornwall. It grows in very large masses. The segments are long and numerous, but not half so broad as those of the preceding. Mr. Stackhouse.

defrac′ta. U. Thread-shaped, unbranched, diaphanous, viscid.

Plate XVIII.—*E. bot.* 1626.

Is found in masses, the stems simple, but variously coiled up, being very elastic as well as glutinous; from 8 to 12 inches long, cylindrical, nearly the eighth of an inch in diameter, terminating obtusely. It consists of a diaphanous membrane replete with a clear gelatinous substance. Inner surface of this membrane interspersed on every part with innumerable minute specks, which at first give the whole plant the beautiful hue of the almond blossom; but as the gelatinous substance diminishes, these granulated substances attain a kind of orange colour, and from the outer fine membrane collapsing upon them they become more distinct, appearing almost as if fixed on the outer surface.

Broken Laver. Found not unfrequently at low water, on the beach at Weymouth; but I never could discover any root upon the various specimens I have examined. As they adhere closely together, and are very tender, they are probably broken by the flux of the sea, and torn off from their base. Specimen and description from Major VELLEY. (Eastern coast of Scotland. JAMES BRODIE, Esq. in E. bot. E.) June.

U. Thread-shaped, entire, or but little branched, opake, slippery, and bluntish. elminthoi'des.

PLATE XVII. *f.* 2.

Resembles a worm in its writhing form, size, and mucilaginous nature. It rises from a thick, blunted base, like glue, fixed in the interstices of the rocks. It is generally simple, sometimes a little branched toward the middle of the plant, sometimes 5 or 6 grow together, in which case they are proportionally reduced in size, which in the largest seldom exceeds that of a goose quill; from 4 to 7 inches long blunt at the end. Colour resembling, but sometimes lighter than that of glue. It is soft, and consists of a fine membrane which on its internal surface seems crowded with extremely minute, opake, granulated bodies. If cut horizontally into very thin lamina, these grains appear fixed in a clear gelatinous substance which constitutes the interior body of the plant, and they seem to occupy about one third part of its surface in a circular direction, leaving the middle part perfectly clear, through the centre of which a dark parenchymous line passes, from one extremity to the other.

Fucus elminthoides. Bot. arr. *ed.* ii. Grows in abundance upon the rocks off the Beal, at the extremity of Portland, at very low water. June, July. I could not find it in October, so that I suppose from its mucilaginous texture it soon perishes. Major VELLEY.

U. Tubular, simple, equal, membranaceous, green. intestina'lis.

Dill. 9. 7—*Buxb.* v. 23. 1.

Varying greatly in size; simple or branched, from the thickness of a quill to that of a walking-stick, and an ell or two in length; hollow: very unequal on the surface, yellowish when young, changing to a fine green. DILL. 47.

Mostly in ditches near the sea, but sometimes in fresh water ditches. Very common in Cornwall, and of all sizes. The inside often filled with sand so as to represent a pig's pudding. Mr. STACKHOUSE. A. March—Oct.

fistulo'sa. U. Tubular, uniform, simple, HUDS. 569.

E. bot. 642.

Root creeping. *Leaves* numerous, pipe-like, closed at the end, brownish, 3 inches long, of the thickness of shop packthread. *Seeds* numerous, small, round, brown. HUDS. *n.* 13.

Stones in the sea, and on Fuci. A. May—Sept.

compres'sa. U. Tubular, branched, compressed.

E. bot. 1739—*Dill.* 9. 8. *and* 10. 8—*Pet. gaz.* 9. 6, *allowed by Dill. to resemble it, but he asserts it to be a different plant, though it certainly corresponds with the plant when not branched, as Dillenius himself allows it sometimes to be.*

Rather solid, unequal, winding, with cells of unequal dimensions communicating one with another. *Branches* scattered, but little branched. LINN. Tubular, sometimes branched, compressed, straight or bent, smooth, even. DILL. 49. GREEN.

Compressed Laver. Rocks, stones in the sea, and in salt water ditches. A. Jan.—Dec.

purpuras'cens. U. Tubular, very much branched; nearly round: branches opposite, pointed. HUDS. 569.

E. bot. 641—*Fl. dan.* 653.

Stem 6 inches high, of the thickness of packthread, purplish, semi-transparent. *Branches* opposite, mostly pointing two ways, round, pointed. HUDS. *n.* 11. Not uncommon in Cornwall. It is a beautiful transparent, tubular and almost gelatinous substance, of a pale purple or pinky colour; not much branched, but the branches very long and tapering. Mr. STACKHOUSE.

Near Christ-church, Hampshire. HUDS. A. March—Oct.

ru'bra. U. Thread-shaped, forked, red. HUDS. 571.

E. bot. 1627.

Leaf 1½ inch long, blunt. *Branches* long. HUDS. *n.* 19.

Red Laver. Stones in the sea, near Christ-church, Hampshire. A. May—Sept.

U. Thread-shaped, branched: branches strap-spear-shap- plumo'sa.
ed, winged, shining. Huds. 571.

Stem a finger's length, flatted, of a brownish reddish hue. *Branches* flatted, closely winged, reddish green, wings jelly-like, hair-like, very green. Huds. *n.* 20.

(On marine rocks near Scarborough, but rare. Mr. Travis. E.) Rocks and stones in the sea, near Exmouth, Devonshire. P. April—Oct.

U. Thread-shaped, very much branched, reddish: ru'bens.
branches scattered, horizontal, blunt. Huds. 571.

Leaf 4 inches long, nearly the thickness of shop packthread. *Branches* short. Huds. *n.* 18.

Rocks and stones in Portland Island, and near Pool, Dorsetshire. A. May—Oct.

U. Thread-shaped, very much branched, purplish; filifor'mis.
branches scattered, distant, very long. Huds. 570.

Leaf 6 inches long, nearly of the thickness of shop packthread. *Branches* blunt. Huds. *n.* 16.

Rocks and stones in the sea. Near Christ-church, Hampshire. A. April—Sept.

U. Stem and primary branches of equal thickness, verticil-
broadest at the origin of the branches: ultimate la'ta.
branches very numerous, of equal thickness, filled
with close set whirls of fructifications.

So very slippery that when first taken up it glides through the fingers.

This non-descript Ulva was sent me by Major Velley, with the following description. " It is a large plant; the lower part of the main stem consists of a lubricous skin which in the secondary branches becomes gradually finer till those branches terminate in minute ramifications composed of granulated vessels pointing two ways. It is not improbable that the globules in these branches may be the source of proliferous vegetation, for numerous slender shoots may be observed to pullulate from them. Major Velley. The fructifications are more regularly disposed than is usual in this genus, and its fine branches and pink colour give it a good deal of the appearance of the Conferva corallina.

Sea coast.

CONFER'VA. *Fibres* hair-like; uniform or jointed: branched or unbranched: containing globular granules; (or, *Seeds* produced within the substance of the capillary or jointed frond, or in closed tubercles united with it. DILLWYN, and E. bot. E.)

(1) *Threads unbranched, equal, without joints.*

rivula'ris. C. Threads very long; (dark green; thickly compacted together; joints short. DILLW. E.)

Dillw. pl. 4—*E. bot.* 1654—*Dill.* 2. 1—*Mich.* 89. 7—*Lob. obs.* 654. 1—*Ger. em.* 1570. 11—*Park.* 1261. 2.

Entirely formed of threads, from 1 to 2 cubits or more in length, extremely slender, floating, not branched, green, shining like silk. DILL. 12.

Long River Conferva. Crow-silk. Slowly flowing brooks and rivers. P. Jan.—Dec.*

Var. 2. Shorter and thicker.

Dill. 2. 2—*Mich.* 89. 6.

Wide spreading, 1 to 2 feet long: thick as a hair, rarely matted, pale green, shining. DILL. 13.

In ditches, in fields near Mitcham, Surrey. DILL.

fontina'lis. C. Threads shorter than a finger; (joints four times as broad as long. E. bot. E.)

Dillw. pl. 64—*E. bot.* 2054—*Fl. dan.* 651. 3—*Dill.* 2. 3—*Mich.* 89. 8. 10. 11.

Consisting of very fine, short, unbranched, hair-like threads, crowded together. Varies in colour, in aerated waters ochrey and harder, in common springs brownish or dark coloured, in rivulets dark green. DILL. 14.—Threads an inch long, collected about a centre, which is yellowish, the extremities dark green. LINN.

Brownish Spring Conferva. On stones in rivulets and springs. In the New River near Hornsey. DILL. A. March—June.

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* (It adheres firmly either to glass or paper. The ancients attributed to it the power of uniting fractured bones, by binding it on the fracture, and keeping it constantly moistened with water. PLIN. Hist. Nat. DILLWYN. E.)

C. Threads slimy, violet-coloured, not a finger's length. confrago′sa.
Huds. 592. Lightf. 976.

Dill. 2. 4.

The whole forms a slippery mucous substance. *Threads* short, so fine and so densely crowded together that no eye can distinguish whether they are entire or branched; shining when dry, and of a fine violet colour. It adheres to the paper without gum. Dill.

Near Llanberris, Wales. Dill. On rocks in the waterfalls on Goatfield, in the Isle of Arran. Lightf. A. May—Oct.

(2) *Threads branched, not jointed.*

C. Threads branched at the ends: branches simple. furca′ta.
Huds. 592.

Dill. 2. 6.

Extremities 2 or 3 forked; pale, not shining, nearly white when dry. Dill.

Gently flowing brooks. A. Oct.—May.

Var. 2. Threads shorter; thicker; and more branched. Dill.

Dill. 3. 10.

Threads 2 to 4 inches long, irregularly dispersed, not taking any determinate figure in the water, about as thick as a hair; green, greyish and not shining when dry. In spring and summer it is of muddy dull green; in autumn it seems renovated and changes to a more lively green. Dill.

Ditches. [Rivulet west of Marazion. Mr. Stackhouse.]

C. Threads forked: (capsules green, elliptical. *E. bot.* dicho′toma.
Joints extremely long: capsules sessile. Dillw. E.)

Dillw. pl. 15—*E. bot.* 932—*Dill.* 3. 9.

Grows upright, crowded together; dull green. Threads smooth, from 4 to 12 inches high, or more, forked divisions beginning about the middle, and these again repeatedly divided and subdivided into other forks. Dill. (The fructification has seldom if ever been observed. Cavity of the stems here and there divided by transverse *septa.* Dr. Smith suspects this plant may be a Chara. *E. bot.* E.)

Forked Conferva. Below Charlton, Kent, in the marsh ditches near the Thames. Merr. 28. Salt water ditches between Greenwich and Woolwich. Dill. Near Gravesend. Huds. (Ditches near Yarmouth. Mr. D. Turner. E.) P. Jan.—Dec. Dill.

bullo′sa. C. Threads matted together, inclosing air bubbles.

Dill. 3. 11.

Threads slender, 3 inches to a foot or more in length, green, or dull yellowish green, soft, rather silky, sending out from the sides other finer and shorter threads. The threads are so much matted together, as to retain bubbles of air under the water. Dill.

Ditches, pools, and the sides of cisterns.

A. March—June. Huds.

Spring, summer, and autumn, and in cisterns all the year. Dill. In salt marsh pools at Weymouth. Mr. Stackhouse.

canalicula′ris. C. Threads more branched towards the base; branches long.

Dill. 4. 15.

Densely crowded, deep green, soft and spongy or velvety to the touch. *Threads* and *branches* slender, very much branched downwards, but little so towards the ends, 1 to 2 inches high; soft and herbaceous when taken out of the water, but when dry it acquires an almost stony hardness, from the mud adhering to it. Dill.

Clear brooks and mill pond troughs. Dill. P. Jan.—Dec.

amphib′ia. C. Threads when dry uniting into stiff sharp points: (capsules sessile. Dillw. E.)

Dillw. pl. 41—*Dill.* 4. 17—*Dillw. pl.* 16?

Fibres innumerable, densely matted together, extremely fine, so that it is difficult to say whether it be branched or not: green. In streams it grows 2 or 3 inches long, and thrown on the shore the threads unite in bundles at the top, and adhere so as to have a thorn-like appearance. In other situations it forms a kind of skin on the ground. Dill.

Banks of rivers, ditches, damp walls, Autumn and Winter; and in Summer in moist shady places. P. Jan.—Dec.

(We are doubtful how far this may be *C. frigida* of Roth. and Dillwyn, and having no specimens at hand, fit to decide the point, must wave the decision for the present. E.)

rigi′da. C. Threads very much branched, stiffish; lesser branches alternate, very short.

Dill. 4. 16.

Several stems arise from one common base, fixed to a stone.

Dull green, tending to brownish: moderately stiff, somewhat hairy. *Stems* branched on every side, and divided, particularly towards the ends, into fine fibres. Dill.

Clear water and where the stream is most rapid. In a stream on Hounslow Heath, and in the Lug near Mortimer's Cross, Herefordshire. Dill. P. Jan.—Oct.

C. Threads very much branched; branches and subdivisions of the branches very long, scattered. fœnicula′cea.

Dill. 2. 8—*Barr.* 1123. 1.

Threads irregularly divided like the leaves of fennel; soft and greenish when young, brownish and stiffer when old. Dill.

Isle of Man on rocks covered by the tide. Dill. Cornwall. Huds. A. June—Oct.

C. Threads soft, very much branched, proliferous, roughish: (joints cylindrical, short. Dillw. E.) littora′lis.

Dillw. pl. 31—*E. bot.* 2290—*Dill.* 4. 19.

From 4 to 12 inches long, yellowish green, with very numerous slender, hair-like divisions; very soft and tender, but not gelatinous. Dill. The figure of Dillenius is erroneous, as giving an idea of a principal stem and branches, which is not the case. Mr. Stackhouse.

Common Soft Conferva. C. plicata. Huds. ed. i. 484. Rocks and stones in the sea. Very common in the pools left by the tide at low water. Mr. Stackhouse. Summer.

C. Threads very fine, very much branched: branches undivided, long, crowded, brown. tomento′sa.

Dillw. pl. 56—*Dill.* 3. 13.

Brownish red, especially when dry. Threads covered with a downy coat which it is difficult to remove; but this and its colour readily distinguish it. Dill. *Threads* almost infinitely divisible.

The figure of Dillenius does not express the habit of the plant, which is loose, straggling, and interwoven like a lock of wool. Mr. Stackhouse.

Rocks, stones, and on Fuci. A. May—Oct.

C. Threads very fine, very much branched: branches undivided, bundled, whitish. al′bida.

Dill. 3. 12.

Threads nearly an inch long, whitish. *Branches* alternate.

Little Branches bundled, simple, whitish, rising nearly to the same height. Huds. Pale green. *Threads* so fine as hardly to be discernible by the naked eye. Substance soft, both fresh and also when dry, like cotton. Dill.

Ditches, bogs, and pools.—Island of Selsey, Sussex. Dill. [Rivulet to the west of Marazion. Mr. Stackhouse.]

A. Oct.—May.

ærugino'sa. C. Threads branched, soft, shorter than one's finger, very green.

Dill. 4. 20.

Colour an elegant cærulean green, which it retains when dry, so that this alone distinguishes it. *Threads* short, numerous, very fine, shining and silky when dry. Dill.

On Fucuses, but not very common. A. June—Oct.

ni'gra. C. Threads branched, very long: branches alternate, many-cleft, very short. Huds. 595.

E. bot. 1686.

Threads 5 inches long, stiffish, black. *Branches* bundled. Huds. *n.* 15.

Fucus fructiculósus. E. bot. Yorkshire coast.

A. May—Oct.

scopa'ria. C. Threads proliferous, of the same length, rough with hair.

E. bot. 1552—*Dillw. pl.* 52—*Dill.* 4. 23—*J. B.* iii. 811. 2—*Lob. obs.* 648. 2, *and ic.* ii. 249. 2—*Dod.* 475. 2—*Ger. em.* 1571. 2—*Park.* 1296, 3.

(Olive-brown, hairy, much branched, and fasciculated. Ultimate divisions awl-shaped, alternate. E. bot. E.) *Branches* woolly and hairy, spreading in all directions; smaller branches nearly of equal length, finely toothed; dull green; reddish brown when old and dry. Dill.

Clustered Brown Conferva. Sea shores, common.

A. May—Oct.

cancella'ta. C. Threads branched: branches alternate, short, with many finger-like divisions.

Dill. 4. 22.

Colour pale, dirty. *Stems* giving out many crooked branches near 2 inches long, which are set with hair-like threads or tendrils, giving a roundish figure to the branch, with an ap-

pearance of hollowness within. Dill. The lateral filaments retain air as if in so many vesicles. Linn.
Stones and rocks in the sea, common. P. Jan.—Dec.

C. Threads very much branched: little branches opposite, very short, many-cleft. Huds. 596. multi'fida.
E. bot. 1816.

Threads 4 inches long, somewhat jelly-like, red. *Branches* opposite, very long. *Little Branches* very fine, remote, and appearing whirled. Huds.

(Mr. Dillwyn seems to think that *C. equisetifolia* and *imbricata* of Hudson, may be no other than this species. E.)

Tufted Red Conferva. Stones and rocks in the sea on the coasts of Hampshire and Dorsetshire. (Newhaven, Sussex. Mr. W. Borrer. E.) A. May—Oct.

(3) *Threads growing into one another.*

C. Threads uniting so as to form a sort of net-work. reticula'ta.
Dillw. pl. 97—*Dill.* 4. 14—*Pluk.* 24. 2—*H. ox.* xv. 4. *row* 3. 4—*Pet. gaz.* 51. 3.

Whole *plant* resembling a net, green, the meshes 4 to 6 cornered. Relh. Silky, shining, green. Threads solid, nearly as thick as a hair, connected so as to form a net, with meshes of 4, 5, or 6 sides. Dill.

Netted Conferva. Ditches and pools about Hounslow. (In the ponds of the Physic-garden, Cambridge. Relhan. Ditches at New Hall, Henfield, Sussex. Mr. Borrer. E.) A. May—Oct.

(4) *Threads hairy.*

C. But little branched; branches short, of equal thickness; substance a closely interwoven texture without a mid-rib. intertex'ta.

Specimens sent by Major Velley from Weymouth, and by Mr. Stackhouse from the Cornish coast. Hardly an inch high, branches few, about the thickness of common packthread, the fibres closely matted together so as to form a dense substance like the felt of a man's hat. I am doubtful if it be not properly a sponge.

C. Little branches very short, undivided, tiled on all sides. Huds. 596. (Joints short; capsules oblong, on pedicles. Dillwyn. E.) spongio'sa.

Dillw. pl. 42—*H. ox.* xv. 9. *row* 2. 6.

Shoots 4 inches long, growing in a circular form. *Branches* few, tough, black, wholly covered with greenish short fibres. *H. ox. p.* 650. 6. Rises from a single stem, 2 or 3 inches high; branches and their subdivisions all of one size. When first taken up it is like a wet sponge, which is caused by very fine filaments on every part of its surface, which point upwards and retain the water. *Colour* very dark brown, inclining to black. Mr. Stackhouse.

Rocks and stones in the sea. [Sandy crevices at low water mark, near Fowey, in Cornwall. Mr. Stackhouse.]

P. Jan.—Dec.

equisetifo'lia. C. Jointed, branched: branches awl-shaped, forked, in whirls.

Dillw. pl. 54—*E. bot.* 1479—*H. ox.* xv. 9. *row* 2. 7.

Size of a packthread, 3 or 4 inches long; red. *Stem* branched. *Branches* generally alternate, taper, lower ones the longest; these and their subdivisions closely covered with whirls of short forked hairs, lying one over another. Stems, branches, and joints red, the other parts diaphanous. Lightf. 985.

Red Sponge Conferva. C. imbricata. Huds. Rocks, stones, and Fuci in the sea. [At Penzance, and at Menabilly, in December. Mr. Stackhouse.]

verticilla'ta. C. Threads branched, jointed: little branches in whirls, forked, bowed in. Lightf. 984. Huds. 653.

Dillw. pl. 55—*E. bot.* 1718.

Stems many from the same root. *Branches* irregular, the whole covered with close whirls of fine, short, elastic, forked hairs, curving inwards. Lightf. Grows matted together. Substance tough and horny. Has the habit of the Lycopodium clavatum. Mr. Stackhouse.

Whorled Spongy Conferva. Among sea rocks in basons of water left by the tides. Lightfoot. [At Polkerris near Fowey, Cornwall. Mr. Stackhouse.]

Obs. The first 4 species in this subdivision may be readily distinguished by the following circumstances.

C. *intertexta.* Has no mid-rib, hardly an inch long, has the colour of a sponge and the texture of macerated wash-leather. It is much more entitled to the name spongiosa than the following.

C. *spongiosa.* This is 2 or 3 inches high, of a dark brown green, has a strong mid-rib tiled on every side with short, stiff, bristle-like threads, so that it much resembles the tail of a hound.

C. *equisetifolia.* This has been named from its mode of growth resembling some of the Equiseta. It is from 3 to 5 inches high, of a red clay colour. The jointed mid-rib is surrounded by whirls of short filaments, but these being longer than the joints it is entirely covered by them.

C. *verticillata.* From 3 to 6 inches high, dark green, branches few, forked, mid-rib jointed, whirls of filaments not longer than the joints, and not so thick set as in the preceding, so that the mid-rib is sufficiently visible. In the older plants these filaments become white and opake.

(C. Variegated with brown and green; filaments unbranched, slender; joints half as long again as broad, alternately pellucid and opake, here and there swelling. alterna'ta;

Dillw. Syn. 22. *t.* B—*E. bot.* 2304.

Filaments loosely entangled in light floating tufts, 6 or 8 inches long, though often not so long.

Alternate Conferva. Fresh water pools and ditches in Spring. E. bot. E.)

(C. Brown: filaments densely entangled, branched, scarcely jointed; branches simple, in pairs, incurved, mostly leaning one way: joints imperceptible. myo'chrous

Dillw. pl. 19—*E. bot.* 1555.

Threads half an inch long, fine as wool.

Alpine Mouse-skin Conferva. Matting with a velvety covering, the stones in the Alpine torrents of Snowdon and Beddgelert. TURNER in E. bot. and DILLW. E.)

(5) *Threads beaded like a necklace.*

C. Threads undivided, bristle-shaped, straight; knots thicker than the threads, angular. fluvia'tilis.

Dillw. pl. 29—*E. bot.* 1763—*Dill.* 7. 47—*Vaill.* 4. 5—*Pluk.* 193. 7, *cop. in Pet.* 106. 6.

Stems several from one common origin, 3 or 4 inches long, thickest below, with few or no branches; spaces between the knots, oblong. Smooth, dull brown purple. DILL.

Horse-tail Conferva. Rivers. Near Bangor. BREWER *in Dill.* 39.—Yorkshire, Cumberland, and Westmoreland. HUDS. 597. P. Jan.—Dec.

Var. 2. Green, contracted at the joints.

Dill. 7. 48.

Resembling the above, but dull green, not slippery, rather stiff, contracted at the joints. DILL.

Near Ludlow, Shropshire, at the New Bridge. DILL. 39. [Rivulet in Garn Dingle. Mr. GRIFFITH.]

re'pens. (C. Red: filaments creeping, crowded, capillary, even, branched; joints cylindrical, twice as long as broad.

Dillw. pl. 18—*E. bot.* 1608.

Red Creeping Conferva. Creeping in minute, dense tufts, like velvet, over the round stalks of Fucus rotundus, lumbricalis, and crispus, also on Conferva elongata; communicated from Yarmouth by Mr. TURNER. E. bot. E. Also found at Dover. Mr. DILLWYN. E.)

fœ'tida. (C. Pale olive: filaments clustered longitudinally, branched, separating at the extremities; internally headed and granulated.

Dillw. pl. 104—*E. bot.* 2101.

Many flaccid, slippery filaments, springing from one root, adhere laterally together, separating and branching off in an irregular manner, and terminating acutely. In these stems longitudinal rows of headed filaments, which also run laterally into each other, may be discerned by the microscope. Whole plant very fœtid. E. bot.

Fœtid Pale Conferva. Salt Marshes at Cley, Norfolk, growing on other Conferva. Mr. HOOPER. E.)

a'tra. C. Threads bristle-shaped, very much branched, brownish black: joints globular, almost jelly-like. HUDS. 597.

Dillw. pl. 11—*E. bot.* 690—*Dill.* 7. 46.

Spreading. *Threads* very slender, 2 inches long; knots very numerous, smaller towards the ends. DILL.

(A scarce species. Springs and brooks. In the Isle of Man. BREWER *in Dill.* 39. Near Martin, Surrey. HUDS. In a rivulet at Hopton near Yarmouth. Mr. TURNER. E.) P. May—Dec.

gelatino'sa. C. Threads branched; joints globular, jelly-like.

Dillw. pl. 32—*E. bot.* 689—*Weis. at p.* 33. *t.* 1—*Dill.* 7. 42.

One to 3 inches long, dull reddish brown or blackish, pellucid, gelatinous, very slippery. *Branches* divided and subdivided, formed of globules strung together like a necklace. Dill.

In springs and rivulets of pure and limpid water. In a large clear spring in Godalmin near the high road, and near Chichester, Sussex. Dill. Between Greenwich and Woolwich. Huds. [Clear springs at Lansdown, near Bath. It does not resemble a vegetable. It is more like some kind of spawn. Mr. Stackhouse.] A. Jan.—Dec.

Var. 2. Green.

E. bot. 689—*Dill.* 7. 43.

Smaller than var. 1, and thinner; ½ to 1½ inch long; greenish. Dill.

In a brook on Enfield Chace. Dill. Spring and Summer.

Var. 3. Pale green.

Dillw. pl. 12—*E. bot.* 1740—*Dill.* 7. 44.

Grows on dead fibres of Fontinalis, and on the veins and nerves of dead leaves. Globules less closely set, very tender, pellucid, pale pleasant green. Dill.

(*Conferva mutatulis.* E. bot. and Dillw. E.) In the same rivulet with var. 2, but in places where the stream ran more rapidly. Dill. In stagnant waters near Manchester. Harrison *in Dill.*

Var. 4. Blue.

Dill. 7. 45.

Grows on several aquatic plants, and sometimes on stones; branched, slender, globules nearly equal in size, blue. Dill.

Small lakes or pools at the foot of the mountains near Llanberris, and in ditches in Clifton Moss, 3 miles from Manchester. Dill.

(6) *Threads jointed.*

C. Threads not branched; joints alternately compressed. capilla'ris.
(Cylindrical, short, capsules sessile. Dillwyn. E.)

Dillw. pl. 9—*Fl. dan.* 771. 2—*Dill.* 5. 25. *A.*

Threads very long, winding, entangled, not branched; joints numerous; floating in the middle of the water. Dark yellowish green; when dried whitish with dark green joints. Dill.

These figures of Dillenius are unnaturally folded; it is rigid, and always grows in straight lines, in a mass together; very long. It decays at the top, becoming pellucid and colourless, and the ripe seeds appear like little dots clustered together. Mr. Stackhouse.

Pools and shallows where the sea water is left on the ebbing of the tide. Kent, Sussex, and Isle of Man. DILL.

A. March—Oct.

Var. 2. Smaller and shorter.

Dill. 5. 25. *B—H. ox.* xv. 4. *row.* 3. 3—*Pluk.* 84. 9.

Finer, and shorter than var. 1; 12 to 18 inches long; not branched. DILL.

In fresh water. In Hackney river. DILL.

Merten'sii. (C. Much branched; branches opposite, pinnated; joints short, capsules minute, acorn-shaped, on short stalks, SMITH.

E. bot. 999.

Named after Prof. Mertens of Bremen, by whose labours this genus is likely to be more fully illustrated. This new species was first found on the beach at Yarmouth by Mr. WIGG; but always in very small quantity. The peculiarity of its habit brings it near to *Fucus Wigghii* and makes it one of the many links that unite the two genera. It is usually about 3 inches high. Its small solid root sends forth many cylindrical pale yellow stems, pinnated from their very origin, with short, opposite, distichous, horizontal shoots, in general simple, sometimes extending into new branches; joints cylindrical; septa darker, and thence conspicuous. Whole plant pellucid, except the capsules, which are opake, and visible only with a good glass. E. bot. E.)

Biddulphia'na. (C. Pale green; filaments capillary, simple, somewhat compressed; joints quadrangular, longitudinally striated; at length separating at one of their edges and divaricated.

E. bot. 1762.

Filaments about half an inch long, nearly three times as thick as those of *C. flocculosa,* and less compressed.

Disjointed Marine Conferva. Found by Miss SUSANNAH BIDDULPH in November and December at Southampton, entangled with various marine productions. E. bot. E.)

Bor'reri. (C. Bright red; capillary, repeatedly branched; branches all alternate, spreading in two directions, zigzag; the ultimate ones level-topped: joints cylindrical, twice as long as broad. E. bot.

E. bot. 1741.

Grows from a small disk, in tufts about two inches high, of a beautiful pink colour. Its fronds are extremely slender.

Borrererian Conferva. This elegant species was gathered on Yarmouth beach in October, by W. Borrer, jun. esq. F.L.S. E.)

(C. Green: filaments capillary, mostly simple, compressed: joints quadrangular, transversely striated; at length separating at their alternate edges and divaricated. flocculo'sa.

Dillw. pl. 28—*E. bot.* 1671.

This wonderful and minute plant forms light green or brownish tufts about a quarter of an inch high, consisting of dense filaments, as fine as a human hair.

Disjointed Fresh-water Conferva. First discovered in England by Mr. Dillwyn and Mr. Joseph Woods, jun. growing on decayed vegetables in a pool on Hampstead heath. Also found in Norfolk by Mr. Turner. E. bot. and Dillwyn. E.)

(C. Pale crimson, repeatedly branched: joints swelling upwards, five times as long as broad; the upper ones beset with opposite, branched, pale fibres: lateral shoots bearing tufts of simple filaments, enfolding many seeds imbedded in mucus. E. bot. barba'ta.

E. bot. 1814.

Fronds two or three inches high.

Bearded red Conferva. Found on the beach at Brighthelmstone in July, by Mr. W. Borrer. E.)

(C. Bright pale green, much branched, rather rigid; ultimate divisions pointing to one side; joints thrice as long as broad, with pellucid partitions. E. bot. læte-vir'ens.

Dillw. pl. 48—*E. bot.* 1854.

Fronds floating horizontally, tufted. Mr. Dillwyn observes that its light green colour and bushy mode of growth distinguish it.

Light-green Bushy Conferva. Common on the shores of South Wales. Dillwyn. At Brighthelmstone. Mr. W. Borrer. E.)

(C. Purplish, much branched, forked, capillary; joints many times longer than broad, slightly swelling up- pedicella'ta.

wards; capsules obovate, on short stalks, solitary, from the forks of the branches.

Dillw. pl. 108—*E. bot.* 1817.

Fronds about 3 inches high, finer than the human hair, forming thick straight tufts, acutely forked at almost every joint.

Fruit-stalked Purplish Conferva. Discovered by Mr. W. BORRER on Brighthelmstone beach in July. E. bot. E.)

œ'rea. (C. Green: filaments unbranched, straight, somewhat rigid; joints very unequal, scarcely so long as broad; their partitions pellucid and constructed. E. bot.

Dillw. pl. 80—*E. bot.* 1929.

Colour with a cast of verdigrise. The filaments grow in large patches on wooden posts and rails in the sea, and from 3 to 15 inches long, about the size of coarse thread, though sometimes as thick as a crow quill. E. bot.

Var. 1. *Conferva isogona.* E. bot. 1930.

Joints all equal. E. bot. in which particular alone this plant appears to differ from the preceding: we therefore presume to introduce it as a mere variety. This likewise seems to be *C. Youngana* of DILLWYN, pl. 102.

Verdigrise Conferva. Both kinds have been found by Messrs. TURNER and HOOKER on the Yarmouth coast. E.)

arbus'cula. (C. Red, much branched; main stems thick, naked, without evident joints: branches compound, tufted, somewhat whorled, their ultimate segments alternate: joints as broad as long: capsules sessile, globose.

Dillw. pl. 85—*E. bot.* 1916.

Plant of a little tree-like form: capsules dark red. E. bot.

Red Shrubby Conferva. Named by its first discoverer Mr. ROBERT BROWN, Librarian to the Linnæan Society. Bantry Bay. Miss HUTCHINS. E.)

flexuo'sa. (C. Green: frond capillary, once or twice branched, zigzag; ultimate branches alternately two-ranked, spreading; joints cylindrical, elongated, with obsolete partitions.

Dillw. pl. 10—*E. bot.* 1944—*Fl. dan.* 882.

The filaments form entangled green masses at the bottom of the water, the principal ones being once or twice branched, finer than a hair, of a dark blackish green. E. bot.

Green Zigzag-branched Conferva. At Yarmouth; Mr. **Turner.** In salt ditches at Clay, Norfolk, in April. Mr. **Hooker.** E.)

(C. Pale green; filaments capillary, simple, compressed; joints quadrangular, rather broader than long, in pairs, transversely and uninterruptedly striated; at length separating at one edge and divaricated. stria'tula.

E. bot. 1928.

Filaments from one to two lines in height, as slender as the finest hair. It is one of those plants which seem to form the intermediate link between the animal and vegetable kingdoms, leaving a striking resemblance to the Tænia.

Disjointed Streaked Conferva. On Fuci and Conferva, at Cromer in April. Mr. W. J. **Hooker.** E. bot. E.)

(C. Glaucous green, branched, cylindrical, obscurely jointed; joints as broad as long; several branches embraced in one sheathing membrane. vagina'ta.

Dillw. pl. 99—*E. bot.* 1995.

The fronds grow close to the ground, or garden pot, crossing each other, forming a sort of irregular net work slippery, and moist. Here and there are found lateral balls containing coiled filaments. E. bot. E.)

Sheathed Conferva. This vegetable, so minute and of so curious structure, appears to be not uncommon during the moist months of winter on the earth of garden-pots, foot-paths, &c. E.)

(C. Deep purple; filaments simple, at length swelling unequally; joints about as long as broad, with a double transverse row of seeds in each. atro-pur-pu'rea.

Dillw. pl. 103—*E. bot.* 2085.

The structure of this minute plant is only observable through a microscope. In its natural size it has the appearance of purple hairs an inch long; when magnified the root is found to consist of a tuft of fibres: each frond is quite simple, finer than human hair.

Dark-purple Simple Conferva. E. bot. E.)

cur′ta. (C. Pale brown: filaments simple, cespitose, rigid, nearly upright, tapering at the base; joints slightly tumid, as broad as long.

Dillw. pl. 76—*E. bot.* 2084.

The short simple fronds form dense rigid tufts, about a line high; slightly headed from the swelling of the joints. E. bot.

Short Conferva. On Fuci in the sea near Plymouth. Miss Hill, ditto. Swansea. Dillwyn. E.)

vivi′para. (C. Green, alternately branched: joints five times as long as broad, swelling upwards; each bearing a lateral, very long, slender, simple branch; bulbous at its base; capsules lateral, sessile.

Dillw. pl. 59—*E. bot.* 2086.

The fronds compose dense continued masses on various aquatic plants from 2 to 6 lines high. Each stem is alternately branched, zigzag. From the top of each joint springs a very long, and extremely fine, simple, hair-like branch, not one tenth so thick as the main stem. E. bot.

Viviparous Conferva. In fresh water near Yarmouth. Mr. Turner. Near Cadoxton Juxta Neath. Mr. Young. E.)

lu′brica. (C. Green, gelatinous, much branched; branches opposite, crowded, the ultimate ones very sharp, mostly alternate; joints as broad as long.

Dillw. pl. 57—*E. bot.* 2087.

It grows on wood or stones in floating masses, from a span to a foot long, slippery to the touch. E. bot.

Slippery green Conferva. In a rivulet at Lounde, near Yarmouth. Mr. Turner and Mr. Dillwyn, the latter of whom has since found it more abundantly near Swansea on Sketty Burrows. E.)

fusco-purpu′rea. (C. Brownish purple: filaments simple, very slender, entangled; swelling irregularly by age: joints 3 or 4 times as broad as long; pellucid at each end, at length internally granulated.

Dillw. pl. 92—*E. bot.* 2055.

Filaments about an inch long. E. bot.

Brownish-purple Marine Conferva. On submarine rocks and wood, which it covers in patches 2 or 3 feet square, conspicuous for their glossy purplish brown colour. Piles in the sea at Brighthelmstone. Mr. W. Borrer. Limestone rocks near Dunraven Castle. Mr. Young. E.)

(C. Purple : much and alternately branched ; branches ca- fibra′ta.
pillary ; the ultimate ones crowded, very slender, pel-
lucid, white ; joints as broad as long, compound.

[illegible] *E. bot.* 2139.

It consists of dense purple tufts, about 2 inches high. It is remarkable for the terminations of many of the main branches being pellucid and colourless, as are all the ultimate fine pencil-like divisions, which are crowded about the upper parts of the former. E. bot.

Fibrous-branched Conferva. Growing on various submarine plants near Forres. Mr. Brodie, in E. bot. E.)

(C. Brownish olive ; filaments branched, erect, tufted, oliva′cea.
entangled, somewhat rigid, branches numerous,
scattered, mostly simple, obtuse : joints rather
broader than long.

E. bot. 2172.

Tufted Olive Conferva. Spreading in patches over rocks. Marine rocks in Papa Westra, Orkneys. Messrs. Borrer and Hooker. E. bot. E.)

(C. Dark green : filaments simple, short, ascending, curv- scopulo′-
ed, taper-pointed ; glutinous and cohering at the rum.
base : joints very short.

E. bot. 2171.

Grows in patches resembling course dark green velvet.

Green Plush Conferva. On planks in the sea, near Bognor, Sussex, Mr. Borrer. E. bot. E.)

(C. Green : filaments simple, capillary, even, rather rigid, tortuo′sa.
twisted and entangled ; joints cylindrical, thrice
as long as broad.

Dillw. pl. 46—*E. bot.* 2220.

The filaments grow in an entangled, rather elastic mass, of deep green ; and are as fine as human hair.

Curling Green Conferva. Ditches near Selsey, Sussex. Mr. Borrer. Salt Pools by the river Yare at Yarmouth. Dillwyn. E.)

diffu'sa. (C. Green, much branched, diffuse, somewhat zigzag: the ultimate branches frequent, short, blunt: joints four times as long as broad, of an uniform colour, with pellucid partitions.

Dillw. pl. 21—*E. bot.* 2289.

Forms tufts from 2 to 6 inches long, rather rigid and harsh to the touch.

Diffuse Green Conferva. In the sea at Brighthelmstone. Mr. W. Borrer, E. bot. and Dillw. E.)

plu'mula. (C. Much branched; branches alternate, winged; wings opposite, the terminating arranged on one side only; joints rather long; capsules numerous, on short fruit-stalks.

Dillw. pl. 50—*Ellis in Phil. Trans.* lvii. *p.* 426.

Of a light red colour. Whole plant is pellucid, with dark dissepiments.

C. plumula. Ellis. In the sea, adhering to other Conferva. At Brighton. Ellis. In Caswell Bay near Swansea, during the summer months. Dillwyn. E.)

multicapsula'ris. (C. Filaments minute, olive-coloured, creeping; branches upright, nearly simple, short, towards the ends thickening and bearing capsules; capsules crowded together, spherical.

Dillw. pl. 71.

Capsules dividing transversely when mature.

This singular and novel species was discovered by Mr. W. W. Young, growing on several parts of the Town-hill, near Swansea: on clayey banks in high and exposed situations. Dillwyn. E.)

Brodiæ'i. (C. Much branched, of a deep red brown colour, branches elongated, bearing clusters of slender ramuli, many cloven, and acuminated at their apices; joints of the main branches very obscure, in the ramuli evident, and of a length and diameter nearly equal.

Dillw. pl. 107.

Extending from a foot and a half to two feet in length, remarkably thick and bushy: mode of growth flexuose. Capsules ovate, sessile, plentifully scattered over the ultimate ramuli; besides which are spherical globules, whose nature is not yet understood.

Rocks in the sea. Near Forres; James Brodie, esq. Bantry Bay. Miss Hutchins: Falmouth, Mr. Turner; Seaton, Devon; Mr. Griffiths; sometimes thrown on the shore at Dover. Dillwyn. E.)

C. Threads not branched, very fine, jointed, very short, crowded together. **fuci′cola.**

Dillw. pl. 66—*Velley ic. pict.*

Consists of numerous filaments hardly ½ inch in length, closely matted together at the base from whence they diverge sometimes in a circular direction. Joints very numerous. Colour muddy yellow or brown. Velley's Marine plants. The filaments of nearly equal thickness, diaphanous, not properly jointed but with numerous partitions across them.

In the sea in the spring, upon the Fucus nodosus and F. vesiculosus, first found, described, and figured by Major Velley. [On the Yorkshire coast. Sir T. Frankland.] (On Marine rocks near Scarborough. Mr. Travis. E.)

C. Threads forked, white; joints purplish, thicker at the end: branches acute. **coral′lina.**

Dillw. pl. 98—*E. bot.* 1815—*Ellis in Ph. tr.* lviii. *f. F. at p.* 426—*Dill.* 6. 36.

Of a fine scarlet when fresh. *Fructifications* in whirls at the ends of the joints. Ellis. Slippery, very tender, whitish, or fine red; always dividing and sub-dividing into forks; almost vanishes in the attempt to dry it. Dill. Consists of many branches, equal in size, and breaking into sub-divisions, sometimes 5 or 6 inches high. When young it is composed of very pale green transparent fibres; as it approaches towards maturity the septa appear more distinct, the joints become more rounded, and replete with a scarlet liquor which in a short time oozes through the tender skin, but it shews its joints very distinctly even after the discharge of this liquor. A very singular instance of irritability appeared in this plant upon immersing it when quite fresh, into fresh water. After it had been in the water a few minutes, several fibres were observed to move in an horizontal direction with a quick convulsive twitch, then to stop suddenly. This they continued to do for some length of time. I repeated this experiment several times, and the same effect was produced, provided the plant was fresh. At first I attributed it to a separation of air from between the joints of the Conferva, but this ought to have been seen when rising up to the surface of the water. I tried the experiment in salt water, but did not observe the same effect. Major Velley.

Coralline Conferva. Conferva geniculāta. Ellis ib. p. 425. Stones and rocks in the sea. On stones at Cockbush, on the Sussex coast, and on the Isle of Inys y much, near Bangor. Dill.—Near Brighthelmstone, Sussex. Ellis.—[Very frequent near Weymouth. Mr. Stackhouse.] A. May—Oct.

ro'sea. (C. Rose-coloured, repeatedly branched, very slender and tufted; articulations pellucid, a little contracted: capsules sessile, obovate, lateral, leaning one way.

Dillw. pl. 17—*E. bot.* 966.

Several stems, an inch or two long, grow from a small round shield-like base. Articulations exquisitely pellucid and colourless. Capsules numerous; becoming dark purple with age. *E. bot.*

Rose-coloured Conferva. Ceramium roseum. Roth. This singularly elegant and novel species was first observed in Britain by Mr. Sowerby, growing in dense tufts upon *Fucus vesiculosus* by the river side at Yarmouth. E.)

ericeto'rum. (C. Dull purple: filaments simple, slender, prostrate, closely entangled, scarcely contracted at the joints, which are about as long as they are broad. E. bot.

Dillw. pl. 1—*E. bot.* 1553.

Purplish Heath Conferva. Communicated by Mr. D. Turner to Mr. Dillwyn. Common on moist heaths, though but recently described. E.)

mura'lis. (C. Green: filaments simple, very slender, prostrate, closely entangled, somewhat rigid, joints very short, slightly swollen, with obsolete partitions.

Dillw. pl. 7—*E. bot.* 1554.

Green Wall Conferva. Clothing damp walls, stones and gravel walks in patches resembling green satin; very common, though first described by Mr. Dillwyn. E.)

bipuncta'ta. (C. Green: filaments unbranched, slippery, cylindrical, joints rather longer than broad, each double-dotted.

Dillw. pl. 2—*E. bot.* 1610.

Double-dotted Conferva. Stagnant waters, either floating in thick masses on the surface, or loose at the bottom of the water. Dillwyn. E.)

(C. Chesnut brown: filaments creeping, branched, entangled, alternately bipinnate: Branches divaricated, tapering, acute; joints elongated, even. casta′nea.

Dillw. pl. 71—*E. bot.* 1701.

Very minute, and greatly resembling the fibrous radicles of many mosses, among which it sometimes grows.

Creeping Chesnut-coloured Conferva. It creeps in loose entangled patches, not only among mosses, but over dead stalks and sticks; also over stones and earth. Dillwyn, and E. bot. E.)

C. Thread-shaped, jointed; joints alternately compressed: Linn. Very much branched; joints oval. Huds. tubulo′sa.

Dill. 6. 39.

From 2 to 4 inches long, irregularly divided and sub-divided into branches, yellowish green. Branches knotted or jointed, hollow. Dill. 34.

Conferva tubulosa. Huds. 600. *Ulva confervoides.* Linn. In Gmelin's *Syst. veg.* it is entered, by oversight, both as a Conferva and as an Ulva.

Rocks and stones in the sea; and on Fuci. A. Summer.

C. Threads forked: branches very long, bristle-shaped; joints cylindrical. Huds. 599. setacea.

Dillw. pl. 82—*E. bot.* 1689—*Dill.* 6. 37.

Sometimes forked, sometimes irregularly divided, divisions more or less frequent, but I have never observed it entire. Colour reddish purple, or greenish red. Dill.) (A beautiful species, 3 to 6 inches long. E.)

The figure of Dillenius is by no means characteristic. This is evidently distinct from Conf. corallina, the joints much more slender, and not thick at the ends. It differs also from that in producing short lateral thorn-like substances. Fructifications in globular clusters on short lateral pedicles; rarely found. It may readily be known by the intolerable odour which it imparts when recent. Major Velley. Its beautiful crimson colour is owing to a liquid in the cavity of the joints which may be pushed to either end of the joint but not beyond the septum. On cutting through a joint and pressing out the liquor, the plant remains colourless, and the liquor under the microscope appears to be a mucilage containing a great number of very minute seeds.

Crimson Setaceous Conferva. Stones and rocks in the sea. (Yarmouth. Mr. Turner. Anglesea. Rev. H. Davies. E. bot. E.) A. May—Oct.

elonga′ta. C. Branches forked, long, bristle-shaped: joints very short. Huds. *ed.* i. 484. *ed.* ii. 599.

Dillw. pl. 33.

(The largest of British Conferva. Dillw. E.)

Threads 9 inches to a foot long, of the thickness of fine packthread, smooth, brownish purple, branched at the base. *Branches* very long. Huds. *n.* 27. *Conf. elongata* of Gmel. syst. veg. is Hudson's C. rubra.

(The *Fucus diffusus* of Hudson is now declared to be no other than this plant. That author appears to have been deceived by its substance being of a somewhat firmer texture than the Confervæ usually are. E.)

Lobster-horn Conferva. On Oysters. Stones and rocks in the sea on the coast of Devonshire, Cornwall, Sussex, and Isle of Man, Portland Island, &c. A. April—Oct.

cilia′ta. C. Threads forked, the points approaching like forceps: joints fringed. Huds. 599.

Dillw. pl. 53—*Ellis in Phil. Trans. vol.* 57. *p.* 425. *t.* 18 —*H. b.*

On the finer kinds of Fuci; also on rocks and stones in the sea. A. May—Sept.

polymor′pha. C. Branches in bundles, nearly of the same length: brownish black.

Dillw. pl. 44—*E. bot.* 1764—*Ellis Phil. trans. vol.* 57. *t.* 18. *a. A. and b. B. at. p.* 426—*Dill.* 6. 35—*Barr.* 1301—*Pet. fuc.* 1. 15—*Pluk.* 47. 10—*Fl. dan.* 395—*Barr.* 1290. 1 *and* 2.

Not so long as the other species but more bearded; with numerous *branches* rising from the base which are very much branched. Male and Female on distinct plants. Linn. *Capsules* transparent. *Seed* readily observable if examined in water with a microscope. *Male Flowers* in catkins. The capsules containing the seeds are placed in the forks at the termination of the branches. They are almost transparent, and when magnified the seeds are visible within them if the plant is kept moist with water. The male flowers are collected into catkins, which stand on the terminations of the branches, not in the forks. Ellis. *ib.* In some specimens the seeds are fixed in the vesicular distended points of the branches; in others there are globular substances in the forks of the branches. Major Velley. Mr. Stackhouse also doubts the accuracy of Mr. Ellis's observations.

Black-tufted Conferva. On Fuci, especially on F. nodosus and vesiculosus. P. Jan.—Dec.

(C. Filaments unbranched; joints thrice as long as broad; when fertile swelling and elliptical. E. bot. infla′ta.

E. bot. 1670.

Very minute; the general tinge greenish, pellucid. The extremely curious organization of this little vegetable has been illustrated by M. Vaucher, as also by Dr. Smith in E. bot.

Tumid-jointed Conferva. Found by Mr. W. Borrer in fresh water at Henfield, Sussex. March. E.)

(C. Bright red; filaments erect, closely tufted, much branched; branches alternate; the upper ones crowded; joints twice as long as broad. phœni′cea.

Dillw. pl. 73—*E. bot.* 1702.

Grows in oblong patches; filaments very fine, half an inch long.

C. *Rothii.* Turton, Dillwyn, E. bot. But very aptly named as above by Mr. R. Brown, who gathered it in a lime-stone cave on the Northern coast of the county of Antrim, near Bally castle. N. E. coast of Anglesea. Rev. Hugh Davies. E. bot. E.)

C. Very much branched; branches distant, acute; joints cylindrical, short. Huds. ru′bra.

Dillw. pl. 34—*Ellis in Phil. Trans. vol.* 57. *t.* 18. *e. E*—*E. bot.* 1166—*Dill.* 6. 38.

Fructifications resembling a strawberry or raspberry, surrounded with a leafy calyx. Ellis. *Fructifications* nearly sitting, solitary, roundish, with an awl-shaped thread beneath each. Huds. About 4 inches high, divided and sub-divided into numerous branches: colour reddish. Dill. The leafy calyx mentioned by Mr. Ellis is only the young shoots breaking out at the knots. The fructification is globular, with the seeds immersed, as in many other species. Mr. Stackhouse.

Red Conferva. *C. nodulosa.* LIGHTF. 994. *C. elongata.* GMEL. *syst. veg.* On rocks, stones, and on Fuci in the sea. A. May—Oct.

purpuras'cens. C. Very much branched; branches crowded: joints cylindrical, long. HUDS.

Dill. 7. 41.

Divided like a shrub; slippery, red. Divisions and subdivisions innumerable, hair-like, short, slender, composed of minute globules. It retains water like wool. DILL.

Stones and Fuci in the sea. A. May—Oct.

nodulo'sa. C. Very much branched: joints oblong, those of the lesser branches roundish, bead-like. HUDS.

R. Syn. 2. 3, *at p.* 60—*Dill.* 7. 40.

Fructifications lateral, sitting, roundish, clustered. HUDS. A very elegant plant. Adheres to stones or to small Fuci. Spreading; variously branched; globules exactly spherical, gradually smaller towards the ends of the branches; gelatinous, slippery, pellucid, red, or red purple. DILL. Often attached to other sea plants. *Branches* not in any apparently regular order, but throwing out ramifications of an equal size, so that it is not easy to trace out any primary stem. It varies in size, is very much branched towards the extremities, which terminate in forks. The septa of the joints towards the summit of the branches are deeply tinged with red, and appear beautiful. Joints swollen in the lower part of the stem. The extreme branches triply forked. Major VELLEY.

On the Sussex coast between Brucklesham and Cockbush, and in the Isle of Man. DILL. A. May—Oct.

Var. 2. Threads finer; joints hardly protuberating. LIGHTF. 995.—[Menabilly near Fowey, Cornwall. Mr. STACKHOUSE.]

Tur'neri. (Red, repeatedly branched, very slender and tufted; the ultimate branches all pectinated on the upper side: articulations pellucid, cylindrical: capsules globose, sessile between the teeth of the branches, leaning one way. E. bot.

Dillw. pl. 100—*E. bot.* 1637.

Ultimate divisions formed of rows of little taper teeth, pointing all one way and towards the upper part. These little comblike branches are regularly ranged, in an opposite manner, all along the stem. Two to four inches high.

Turnerian Conferva. The knowledge of this new and beautiful species is derived from Mr. Turner. It has been collected by Miss Biddulph in the sea off the Isle of Wight, and near Southampton, in May, June, and July. E.)

(C. Purplish brown: filaments capillary, branched, zigzag, very obscurely jointed; branches scattered, sharp-pointed, but little spreading. comoi′des.

E. bot. 1700.

Hair-brown Conferva. Common on sea-shores, frequently covering the round pebbles in slender, hair-like tufts, lying one over the other, resembling the head of an infant. Dillwyn, and E. bot. E.)

C. Very much branched; branches forked, like forceps at the end; the partitions very red; the joints semi-transparent. Lightf. 996. diaph′ana.

Dillw. pl. 38—*E. bot.* 1742—*Fl. dan.* 951.

The whole plant seems to the naked eye to consist only of a branched series of small red dots. Lightf. 996. Thread-like and almost evanescent. Mr. Stackhouse.

Red-dotted Conferva. Rocky stones in basons of water left by the tides, and often adhering to Fuci. Lightf. On the shore at Cramond.

C. Very much branched; branches opposite: joints cylindrical, very long. Huds. pellu′cida.

Dillw. pl. 90—*E. bot.* 1716.

Threads nearly 6 inches long, shining, transparent, greenish purple. *Branches* mostly 3 forked, joints equal. Huds. *n.* 34.

Pellucid Three-branched Conferva. Rocks and stones in the sea on the coasts of Devonshire, Cornwall, Hampshire, and Sussex. Yarmouth. A. May—Oct.

C. Threads winding; branches and divisions of the branches rather short. vagabun′da

Dill. 5. 32.

Very much branched, the ultimate branches divided into extremely minute divisions and sub-divisions; pale green; joints so small towards the extremities as hardly to be seen with a common eye-glass. Dill. Not rooted. Linn.

Salt water marshes and ditches. A. April—Oct.

C. Very much branched, green. Linn. Branches and little branches rather short, crowded. Huds. rupes′tris.

Dillw. pl. 23—*E. bot.* 1699—*Fl. dan.* 948—*Dill.* 5. 29—*Pluk.* 182. 6.

Intersections of the joints hardly visible to the naked eye, RAY. Syn. 60. *n.* 19. The juice is green, but the interstices are colourless. Mr. STACKHOUSE.

Green Rock Conferva. Rocks and stones in the sea, plentifully. P. Jan.—Dec.

Var. 2. Finer and less rigid.

Dill. 5. 28.

Two or three inches long, dull green; threads so fine as to require an eye-glass to observe the joints. Divisions principally towards the ends, which terminate in short and extremely slender hairs. DILL. This is very soft, and different in its habit from the preceding, which is more rigid and of a fuller darker green. The joints are not swollen. Mr. STACKHOUSE. (Probably a new species. E.)

On the keels of boats at Godstow. BOBART in Dill. 27.

licheni′cola. (C. Red: filaments upright, crowded, alternately branched, roughish: joints swelling, about as long as broad. E. bot.

E. bot. 1609.

This singular production grows parasitically on several crustaceous Lichens, having the appearance of brick-dust. Stems scarcely a line in height, erect, forming tufts, which, under a magnifier look like velvet.

Red Lichen Conferva. Communicated by Charles Lyell, Esq. to Mr. Sowerby, from Beech trees of the New Forest. E.)

pectina′lis. (C. Green; filaments brittle, slippery, unbranched, tapering, compressed; joints thrice as broad as long, their central part opake. E. bot.

Dillw. pl. 24—*E. bot.* 1611.

A very minute species; stems not more than ½ an inch long, compressed. Joints remarkably short. On drying, it turns to a greenish ash-colour, and shines as if covered with gum-water, thus adhering firmly to glass or paper. DILLWYN.

Short-jointed Conferva. Discovered by Mr. W. BORRER, growing on decayed leaves in ditches at Hurst Pier-point, in the month of March. E.)

seri′cea. C. Very much branched, pretty long; green: little branches crowded, as it were from a centre; very fine.

Dill. 5. 33—*Fl. dan.* 651. 1.

Four to 8 inches high, divided into very numerous crowded short branches, fine green in fresh, pale green in sea water. Dill.

Rocks and stones in the sea. Isle of Sheppey. In the New River near London. P. Jan.—Dec.

C. Little branches rather short, many-cleft. glomera'ta.

*Dill.pl.*13—*E. bot.* 2192—*Dill.* 5. 31—*H. ox.* xv. 4. *row* 3. 2—*Fl. dan.* 651. 2—*Park.* 1261. 1.

From 4 to 12 inches long, or more; green. *Branches* numerous, divided and sub-divided, the mid-rib still thicker than the other parts, but the extremities ending in numerous hair-like, short, and very fine divisions, so as to have a bushy appearance. Dill.

Green Cluster Conferva. Brooks and springs. A. April—Oct.

C. Branches and lesser branches alternate, very short: tawny. ful'va.

Much branched upwards; generally forked at the top; colour tawny, or yellowish brown: pellucid joints not swollen. *Fructifications* urn-shaped, on the sides of the branches and in the forks.

[On Fuci and Sertulariæ in Mount's Bay, Cornwall. Mr. Stackhouse.] On stones and Fuci on the Yorkshire coast. A. May—Sept.

C. Very much branched, branches very long: lesser branches somewhat bundled, very short, awl-shaped. Huds. nigres'cens.

E. bot. 1717.

Threads 6 inches long, forming a turf, of a slight tinge of blackish hue, black when dry, smooth. *Branches* alternate. Huds. *n.* 40. About 4 inches high; texture hard, woody: branches very fine, twisted, not diverging: nodules of fructifications small, lateral. Colour brown black. Mr. Stackhouse.

Compound-jointed Conferva. Rocks and stones in the sea. Near St. Ive's, Cornwall, and Exmouth, Devonshire. [Polkerris near Fowey, and at Penzance. Mr. Stackhouse.] (Scottish coast. Mr. Brodie, and Yarmouth. Mr. Turner. E. bot. E.)

C. Red: much branched; branches 4-sided. (Joints twice as long as broad: capsules lateral, sessile, globose. E. bot. E.) tetrago'na.

Dillw. pl. 65—*E. bot.* 1690.

Colour bright pink, one to two inches long. When magnified the stem and branches appear 4-sided, the sides hollowed. Mr. Stackhouse.

Pink Square-branched Conferva. Found by Major Velley and Mr. Stackhouse at the Bill of Portland, growing parasitically on the larger Fuci, principally on their stems. (Swansea. Mr. Dillwyn. Weymouth. Mr. Turner. E. bot. E.)

(There is some reason to apprehend that *Fucus Byssoides* of Lin. tr. v. 3. p. 229. is no other than this Conferva. E.)

fus′ca. C. Very much branched; little branches alternate, undivided. Huds.

Dillw. pl. 95.

Threads 3 to 4 inches long, blackish brown or reddish, smooth. *Branches* alternate, long. *Little branches* short, distant. *Fructifications* terminating and lateral, sitting, small, roundish, clustered. Huds.

Stones and rocks in the sea. A. June—Oct.

lu′cens. C. Bright shining green: filaments unbranched, slender, slippery; joints even, rather broader than long. E. bot.

Dillw. pl. 47—*E. bot.* 1655.

Threads 2 or 3 inches long, extremely fine.

Shining River Conferva. Rapid streams near Lewes. Mr. Borrer. Rapid rivulets of Glamorganshire. Mr. Dillwyn. E.)

fucoi′des. C. Very much branched; lesser branches many-cleft, the lowermost bundled, bearing fruit. Huds.

E. bot. 1743—*Dillw. pl.* 75.

Threads a foot long, smooth, of a blackish reddish hue. *Branches* alternate; *little branches* somewhat forked. *Fructifications* terminating, radiated, small. Huds. *n.* 42.

Brown Fucus-like Conferva. Rocks, stones, and on Fuci in the sea. P. Jan.—Dec.

villo′sa. C. Joints woolly: branches mostly undivided, distant. Huds. (Greenish yellow. E.)

Dillw. pl. 37—*E. bot.* 546.

Threads 6 inches long, green, semi-transparent. *Branches* long, bristle-shaped; joints woolly, or beset with very short very fine little branches in whirls. Huds.

Stones and rocks in the sea, Cornwall, but rather rare. (At Yarmouth. D. TURNER, Esq. Mumbles near Swansea. DILLWYN. E.) A. May—Sept.

C. Very much branched, compressed; branches more than doubly compound, alternately winged; fructifications on distinct plants. coccin′ea.

Dillw. pl. 36—*Ellis in Phil. Trans. vol.* 57. *pl.* 18. *c. C. d. D*—*E. bot.* 1055—*Pluk.* 48. 2.

From 3 to 6 inches high, bright red, or purple. Conical like a fir tree in its general shape. *Stamens* and *capsules* on distinct plants; the former growing on short pedicles fixed *to* the minute segments of the branches; the latter sitting, egg-shaped, on the sides of the extreme ramifications. (Dr. Hull is not of this opinion, he thinks they may be capsules in different states of growth. E.)

Scarlet Conferva. C. plumosa. Lightf. Rocks, stones, and Fuci in the sea. (On marine rocks near Scarborough. Mr. TRAVIS. E.) P. Jan.—Dec.

C. Branches crowded, trebly winged, segments awl-shaped. HUDS. (Joints short; tubercles sessile, spherical. DILLWYN. E.) penna′ta.

Dillw. pl. 86.

Bushy like the tail of a fox. RAY. Syn. 59. Olive green, with age changing to brown. The knotted joints only visible on the primary branches. Major VELLEY.

Mr. Hudson has quoted this Synon. from Ray on the authority of Petiver's Herbarium, but Mr. Stackhouse remarks that Ray's species stands amongst the kinds without knotted joints. This however may easily happen, the joints being hardly visible without a Lens.

Stones and rocks in the sea, between Dover and Margate, and the Isle of Walney, Lancashire. [Penzance. Mr. STACKHOUSE.] (On marine rocks near Scarborough, but rare. Mr. TRAVIS. E.) P. Jan.—Dec.

C. Branches doubly winged. HUDS. (Fructifications axillary, solitary, oblong. E. bot. E.) parasit′ica.

E. bot. 1429.

Threads an inch long, brown. *Branches* nearly an inch long; little wings pointed. HUDS. *n.* 47. Purplish brown.

Parasitical Feathered Conferva. (A scarce plant, but not unfrequent about Scarborough. Mr. TRAVIS. E.) On Fuci on the coasts of Yorkshire, Cornwall, and Dorsetshire.

echinula'ta. (C. Glaucous: stems jointed, undivided, spreading every way from a centre, and forming a globe. Smith.

E. bot. 1378.

This minute vegetable, which appears to be scarcely larger than a pin's head, was communicated by the Rev. Mr. Davies, from a lake in Anglesea, where it covers the surface of the water in June and July, and consists of innumerable minute globules, nearly of a size. Examined by a high magnifier each globule seems to be composed of simple, cylindrical, jointed short filaments, spreading in every direction, and springing from a solid centre.

Little Hedge-hog Conferva. E. bot. E.)

ægagro'pila C. Very much branched; branches extremely crowded, proceeding from a centre and forming a round ball.

E. bot. 1377—*Dillw. pl.* 87.

Green; of the size of a walnut, exactly spherical, loose, not adhering to stones. *Threads* knotted, green, the knots brown, growing as close as the balls found in the stomachs of animals, no solid body in the centre from whence they might be supposed to shoot. Linn. Bright green, in balls of an irregular spherical figure, from 1½ to 3 inches diameter, and from their external to the internal surface about ¼ inch, most compact nearest the surface, covered on the outside with short villi. Watson *in Phil. Trans. vol.* 47. *p.* 499.

Globe Conferva. Moor Balls. In mountainous lakes. On the large lake on Wallingfen Moor, 12 miles west of Hull, the water of which is sometimes rendered a little brackish at high tides from the Humber with which it communicates. In many places the bottom of the lake is covered with these balls like a pavement, and many are left dry on the shores every summer. Mr. Dixon *in Phil. Trans. ib.* (Here it was originally discovered and collected in large quantities, by Mr. Thomas Knowlton, gardner to the Earl of Burlington, at Lanesborough, about the year 1728. The above-mentioned lake has since been drained, and this curious natural production has probably disappeared. E.) [In a large pool called the White Sich, on a common between Shiffnal and Newport, Shropshire.] (Culmere, Shropshire, and the lakes of North Wales. E.)

BYS'SUS. Substance, like fine down or velvet, simple or feathered.

(1) *Thread-like.*

Flos-a'quæ. B. Threads feathered, swimming upon water.

In the middle of summer it rises and mixes with the water which in consequence becomes greenish and turbid, hardly drinkable for several days, but every night it subsides towards the bottom. BERGIUS *in Linn. suec. n.* 1182. Weis says it is only a matter formed of the particles of aquatic plants dissolved by putrefaction, which being light rise to the surface of the water. But I have reason to believe that it will prove to be a Conferva, perhaps the C. bullosa. Observing a pond in the state of flowering, as the country people term it, I examined some of the water, but the particles floating in it were so minute that even with the assistance of a very good microscope, I could not satisfy myself as to their figure or structure. Two or 3 weeks later in the spring I found *threads*, not jointed, not branched, either straight or coiled up like a cork-screw. Some of this water kept in a glass jar, after 2 or 3 weeks more let its contents subside, and then it began to appear like a Conferva. The threads soon became much larger, and assumed a jointed appearance.

Stagnant waters. A. May—Aug.

B. Downy, violet coloured, growing on wood: (joints rather long. E.) phospho′rea.

Dillw. pl. 88—*Mich.* 90. 3—*Dill.* 1. 6—*Mich.* 90. 8.

Colour vivid, very beautiful and delicate, much finer than the finest wool.

(*Conferva Phosphorea.* DILLWYN. *Auricularia Phosphorea.* SOWERBY. E.) On the bark of trees and rotting wood. [On the stump of an ash tree which had been cut down; very fine. Mr. GREGOR.] Oct.—May.

B. Threads simple, very simple, of a verdigris colóur. æruginо′sa.

E. bot. 2182—*Dill.* 1. 7.

Consists of an extremely fine woolly substance cohering together, but so fine that it is not easy to distinguish the fibres. DILL. Its colour distinguishes it. Forms an extremely thin crust, consisting of powdery filaments extremely minute, collected into little heaps. WEIS.

(*Lepraria æruginosa.* E. bot. E.) On the stems of dead fern, COLE *in Dill.*—and rotten wood. HUDS. [On the pillars in Roslin Chapel, near Edinburgh. It has not been found before, since the time of Dillenius. Dr. J. E. SMITH.] A. Aug.—April.

B. Hair-like; green: threads branched: (joints long. DILLWYN. E.) veluti′na.

Dillw. pl. 77—*E. bot.* 1556—*Mich.* 89. 5—*Dill.* 1. 14.

Spread upon the ground like a fine green carpet. Consists of filaments so fine as not to be distinguished by the naked eye, crowded and matted together, branched and not branched, extremely short but mostly upright like the pile of velvet. DILL.

Conferva Velutina. E. bot. and DILLWYN. (Mr. Sowerby is reported to have detected joints in the structure of this plant, in which case it may probably arrange with the Confervæ. E.)

On the ground in the shade, and the moist bark of trees.

A. Oct.—June.

purpu'rea. B. Filaments simple or branched, very short, upright; (joints rather long. DILLWYN. E.)

Dillw. pl. 43—*E. bot.* 192.

Very like a piece of crimson plush or velvet.

Conferva purpurea. DILLWYN. *Byssus rubra.* HUDS. Stones and rocks, especially on such as are near the sea.

P. Jan.—Dec.

ni'gra. B. Threads branched, rigid, black; adhering to stones: (jointed. DILLWYN. E.)

Dillw. pl. 101—*Dill.* 1. 18—*E. bot.* 702—*Mich.* 90. 5—*Gled.* 1. 1, *Byssus* 2.

Threads short, very black, crowded together. DILL. *Threads* short, stiff, either simple or with 1 or 2 short lateral branches.

(*Conferva elienea.* DILLWYN. *Conferva nigra.* ROTH. E.) Rocks and larger stones in the North of England and Wales.

Var. 2. Threads still shorter, not at all branched.

[On fallen sticks in the woods at Woodhall, near Edinburgh. Mr. BROWN.] P. Jan.—Dec.

au'rea. B. Hair-like, powdery; orange-coloured; fructifications scattered: threads simple and branched: (jointed.)

Dillw. pl. 35—*E. bot.* 212—*Dill.* 1. 16—*Mich.* 89. 2—*Gled.* 1. *Byssus f.* 1—*Fl. dan.* 718. 1—*Pet. gaz.* 15. 3.

Grows in raised tufts. *Threads* very fine, very short, branched or entire, soft, crowded and matted together like a fleece; saffron coloured, changing to greyish when dry. DILL. (The patches of this plant bear a striking resemblance to orange-coloured cloth: even without the aid of a microscope the filaments may be seen to be much branched: the branches are long, patent, incurved, divided into joints by pellucid dissepiments. DILLWYN. In consequence of this discovery there appears to be reason for removing this hitherto obscure Alga to the Confervæ. E.)

Bissus aurea. LINN. HUDS. E. bot. *Conferva aurea.* DILL-

WYN. On the sides of caverns. [On the walls of Lilleshall Abbey, Shropsh.] (Near Pont Nedd, Vechan, Glamorganshire. Mr. Woods in Dillw. E.)

B. Threads upright, finely feathered ; tawny : fructifications terminating. **ful′va.**

PLATE XVIII. f. 5. *a. b.*—*E. bot.* 701—*Dill.* 1. 17.

Of a rich tawny yellow, which colour it retains when dried. When fully grown about 2 inches high, growing in tufts. Each fibre is divisible into other fibres, but they are all finely feathered from the base upwards. The ends appear more solid, of a chesnut colour, and not unlike anthers. When examined in the microscope, these chesnut coloured tips all resemble one another, and appear very different from the rest of the plant. They are filled with granules, and are hispid with bristle-shaped tubes pointing upwards. See Pl. 18. f. 5. *b*, a single tip magnified. This is the whole that I have yet been able to discover of the fructification. We may either suppose the tip to be a capsule, the granules it contains the seeds, and the bristle-shaped tubes the pistils ; or else that the Granules are Germens, and each of the tubes a case of Anthers.

This plant, whose perfect state of growth seems to open the way to a discovery of the fructification of the Genus was observed by the Right Hon. Lady Elizabeth Noel, growing upon an old elm chair which received the drippings from a water cistern ; and I am indebted to the kind attentions of her Ladyship for fine specimens in the highest state of perfection.

The Byssus barbata when fully grown resembles this species in colour and in height, but that is marked by transverse lines shewing the growth of each year, similar to what we see in the tubes of the perennial Boleti, and the stems split at the ends into a number of capillary fibres.

Dr. Smith in E. bot. is of opinion that this plant is the same as B. barbata.

Moist rotting wood, and tubs used to catch rain water.

A. July—Aug.

B. Threads tawny, nearly upright, and of the same length ; the ends branched. **barba′ta.**

Dill. 1. 19—*Mich.* 90. 1.

When young yellow, short, densely compacted, spreading wide, resembling a fleece of wool. When older it attains the height of 2 inches, grows upright, but closely crowded together, the top of each filament dividing into numerous very fine fibres so as to appear downy. It is then tawny or saffron coloured. The growth of each year is marked by a transverse line. DILL.

Rotten wood and rotten trunks of trees. A. Jan.—Dec.

can'dida. B. Threads very much branched: little branches bundled, whitish.

Dill. 1. 15—*R. Syn.* 23, *at p.* 477.

Substance tender, woolly, closely pressed to the surface on which it grows; white, or livid, or yellowish. From a broadish woolly and mucilaginous base arise many slender branches, spreading more in width than in height; elegantly divided and subdivided, the extremities ending in capillary fibres or an expanded surface. Dill.

On rotten leaves, rotten wood, and half rotten leather.
A. Sept.—April.

septi'ca. B. Hair-like, very soft, parallel, very brittle, pale. Linn. Threads very long, very fine, *branching**, matted. Huds. 607.

Dill. 1. 9—*Mich.* 89. 9.

Threads like cotton, finer than those of a cobweb, grey white, not viscid; burns like touchwood. Linn. So tender and light that the breath will disperse it, pure white, like very fine wool, threads not branched; when handled seems to dissolve into water from the moisture affixed to it. Though so very tender it remains long in its native situation. Dill. It grows most luxuriantly on bins and wooden shelves in cellars where wine has been spilt, hanging down in form of a jelly-bag, or of a cylinder with a globe at the end, to the length of a foot or more. It is easily crushed, and then seems principally to consist of water, adhering to the fingers.

Damp cellars and vaults. P. May—Dec.

It dissolves and destroys the hardest wood. Linn.

Var. 2. Fibres short, matted.

Dill. 1. 12.

Pale yellowish or reddish, changing to glaucous green, then red brown and at length blackish, in colour, substance, and softness somewhat resembling the skin of a mouse. At first it is flat, but one layer growing upon another, it is gradually raised. It consists of fibres, too fine to be observed by the naked eye, at first upright, afterwards matted together. It generally grows in a circular form. Dill. Fibres either simple or branched;

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* Micheli, cited by Linnæus, and Hudson; and Dillenius referred to by Hudson, describe them as *not branched*. Hudson gives two synonyms from Ray. The first appears to be the plant of Mich. and Dill.; the second, which is described as *ramosissimus* seems to be what fell under Mr. Hudson's immediate inspection. Mr. Woodward.

the branches few, short, generally standing at right angles, either opposite or irregular.

On wine casks.

B. Hair-like; perennial; ash-coloured, tough. crypta'rum.

Dill. 1. 20.

Threads ½ an inch long, thick as a hair, dirty white, brittle, not branched, crowded, diverging from a centre. DILL.

On the sides of caverns in limestone rocks, and on plaistered walls in vaults. P. Jan.—Dec.

FUNGI*.

MERU'LIUS. PILEUS with Gills or veins underneath, of the same substance with the rest of the plant.

(1) *With a stem, and Gills underneath.*

M. Gills white, broad at the base, few, 2 or 4 in a set: pileus white, convex, a little bossed, elegantly plaited at the sides; stem white, slender. umbellif'-erus.

Mich. 80. 11—*Bull.* 519. 1. *A*—*Bolt.* 39. *A*—*Mich.* 74. 7—*Buxb.* 4. 31. 3.

GILLS fixed, white, mostly in pairs in the small, in fours in the larger plants, long ones about 18.

PILEUS white, convex, a little bossed, sides plaited, very thin and semi-transparent, ¼ to ¾ of an inch over.

STEM hollow, whitish, smooth, ½ to 2½ inches high, not thicker than a horse-hair in the smaller plants, nearly as thick as a crow quill in the larger.

Ag. stipitatus, pileo plicato membranaceo, lamellis basi latioribus. *Fl. suec.* 1192. Ray *Syn.* p. 9. n. 46.

The delicate structure of this plant causes it to tremble when held in the hand, as Haller has observed. The *pileus* has sometimes a little mouse-colour in its centre, and so has the stem in the larger plants towards the bottom. It dries when old, and then turns wholly of a brownish colour. Mr. Stackhouse once found, and figured one specimen with a ring on the stem.

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* (In addition to the method of preserving Fungi, particularly detailed at p. 38 of vol. 1. it may be added, that they are capable of being dried in a stove of clean sand moderately heated, so as not only to preserve their form perfectly, but their colour in a great degree. This discovery was made accidentally, and communicated to the "Decade Philosophique" by a naturalist who found mushrooms buried under loose sands, keeping their form; and who has since perpetuated a collection of them by this means. Month. Mag. v. 20. 260. E.) In the same work we find a plan of treatment said to be very successful in cases where persons have unhappily eaten deleterious kinds of Fungi, "Excite vomiting promptly, employ laxatives and clysters, and after the first evacuations administer a dram of sulphuric ether in a glass of water of marsh-mallows." E.)

It is sometimes very minute. Stem not ½ inch high, and a pileus not larger than the head of a pin. Baron Haller, Michelius, and others, are inaccurate in describing this species as *striated.* That character, strictly speaking, ought to imply certain streaks or marks inherent in the pileus, whereas the striæ which they allude to, are nothing more than the edges of the gills appearing plainly through.

Ag. stipitatus, pileo plicato membranaceo, lamellis basi latioribus. Linn. and Huds. 621.—*Ag. candidus.* Huds. 620. *Ag. umbelliferus.* Linn. but the gills being of the same substance as the pileus, and therefore, like the Chanterelle, not properly an Agaric. Mr. Woodward. *Ag. corticalis.* Bull. *Ag. umbelliferus.* Bolt.

Common in hedge bottoms and amongst moss, attached to dead leaves and half rotten sticks. Oct.—Nov.

Ray *Syn. t.* 1. *f.* 2. *a. a.* can hardly be shewn to be different from this.

androsa'ceus. M. Gills white, decurrent: pileus white, convex, centre depressed: stem red brown below, shining.

Vaill. xi. 21. 21. 22. 23—*(Bocc. musc.* 143. *t.* 104; *is also quoted by Linnæus.)—Bull.* 569. 2—*Sowerby* 94.

Gills extremely thin. *Pileus* membranaceous, plaited. *Stem* black, very slender. Linn.—Vaillant observes that his figures represent the largest sized specimens; that the *gills* are few, white, very distant from one another; the *pileus* white, and so thin that the gills seem to pass through it; the *stems* solid, smooth, rather shining, dark coloured. Vaill. par. p. 69.

Gills somewhat decurrent, white, few, mostly in pairs.

Pileus brownish white, flat, the edge turned down, the centre depressed; very thin and semi-transparent, nearly ½ inch diameter.

Stem solid, white at the top, shining and purplish brown below, almost black at the base; about 3 inches high, not thicker than a large pin.

Ag. androsaceus. Linn. *Ag. epiphyllus.* Bull.

Packington Park, amongst moss. Autumn.

collaria'tus. M. Gills white, uniform, fixed to a collar surrounding the stem: pileus white, skinny, dimpled: stem white above, black below.

Sowerby 95—*Bull.* 64—*Bolt.* 32—*Fl. dan.* 1134. 1—*Schæff.* 239—*Mich.* 74. 5.

Gills loose, from the stem, but fixed to a band or collar surrounding the top of the stem, but at some distance from it; white, yellowish brown with age, uniform, from 17 to 20.

Pileus white, convex, dimpled, ribbed at the sides, thin, skinny, 1-8th to 3-8ths of an inch over.

Stem hollow, scored, white above, dark mouse or almost black below, 1 to 3 inches long, not thicker than a pin.

It does not appear by Mr. Bolton's figure or description whether the gills are fixed to a collar, or to the stem, but be that as it may, ours is certainly the plant of M. Bulliard, quoted above, though he says the stem is solid, and calls it the *Ag. androsaceus* of Linnæus, but that is a very different plant, and had he given a dissected drawing, he would not have found the stem solid. The gills are carelessly done both by Schæffer and Bolton, and in the latter the dimple in the centre of the pileus is not expressed. The plant at first is entirely white, but it dries, remains a long time, and gradually changes its colour to a yellow brown, the stem becoming quite black.

Ag. collariatus. Bot. arr. *ed.* ii. *Ag. androsaceus* of Schæffer; Hudson, Lightfoot, Relhan, Bolton, &c. but not of Linnæus, Scopoli, or Haller. Ray *Syn.* 9. 49.

Growing upon dry sticks in hedge bottoms; not uncommon. August.

M. Gills white, decurrent; pileus white, funnel-shaped: stem white, very short. **buccina'lis.**

Sowerby 107—*Batsch.* 214.

Gills decurrent, white, few, 4 in a set, but irregular; larger ones about 12. *Pileus* white, thin, leather-like, waved and cracking at the edge, hollow in the centre, scarcely ½ an inch diameter. *Stem* solid, white, crooked, ¼ of an inch high, thick as a large pin, but gradually thicker upwards until it is insensibly lost in the pileus. *Ag. buccinalis.* Batsch.

In the garden and amongst grass, at Packington, Warwickshire, the seat of the Right Honourable the Earl of Aylesford.

M. Gills few, light brown: pileus light brown, centre depressed: stem light brown, stiff. **fus'cus.**

Gills fixed, light brown, few, in pairs.

Pileus light brown, slightly convex, centre rather darker, and depressed, scored from the gills appearing through, tearing at the edge, full ¼ of an inch diameter.

Stem solid, light brown, stiff, $\frac{1}{2}$ to $\frac{3}{4}$ inch high, not thicker than a pin.

In clusters, in the Earl of Aylesford's Park, Packington, Warwickshire. Autumn.

Cantharellus. **M.** Stem solid, often compressed: gills decurrent, branched, anastomosing.

Sowerby 46—*Bull.* 62—*Bolt.* 62—*Batsch.* 120—*Schæff.* 82. 206—*J. B.* iii. 832—*Fl. dan.* 264—*Vaill.* xi. 9. 10. 11 14. 15—*Battar.* 14. *A. B. C.*—*Batsch.* 37—*Ger.* 1384, 2—*Trag.* 940—*Clus.* ii. 270. 2, *the bottom of the page.*

Gills decurrent, fleshy, branched, anastomosing. Substance the same as that of the stem and the pileus; very different from the gills of Agarics. In the microscope they appear covered with very minute granulated particles.

Pileus concave, curled at the edge, often very irregular, 1 to 3 inches over. *Flesh* spongy, whitish.

Stem solid, tapering downwards, often compressed, and then rarely central; 1 to 2 inches high, $\frac{1}{4}$ to $\frac{3}{4}$ of an inch in diameter.

Obs. Whole plant yellow as the yolk of an egg. It does not soon rot and decay as the Agarics do, nor is it much liable to the attacks of insects. It is very apt to be sportive and monstrous in its growth, as may be seen in the following figures, Batsch. 34. fan-shaped, Vaill. 12. 13, very much curled, &c.

Pileus turban-shaped, flattish, edge mostly bent in. *Gills* deep yellow, short, naked. Linn.—Colour mostly pale yellow, sometimes deep yellow, and even saffron-coloured. Ray Syn. 2. n. 5.—It is remarkable that this plant, which universally takes the lead in the genus Agaricus, most certainly does not belong to that genus; having no regular gills, but only projecting veins variously branched and anastomising, but of the same substance as the pileus; they much resemble the veins of the Peziza cornucopioides and P. acetabulum. The mode in which this plant discharges its seed does not appear to be known. It seems to approach nearer to an Helvella than to an Agaric. Perhaps this plant, the Ag. infundibuliformis of Bolton, (which seems to be Ag. cornucopioides of Bulliard,) Ag. candidus of Hudson, and the 2 Pezizae above mentioned, ought to form a new genus. Mr. Woodward.—*Pileus* hollow, undulated and fringed at the edge; stem short, solid; gills thick, branching. It is remarkable in every respect; its bright yellow colour, venose gills, and particularly for its grateful smell, like ripe apricots, which it preserves in decay. Mr. STACKHOUSE.—The reticulation of the gills not represented in Schaeff. 82 and 206, to which plates our authors refer. Major VELLEY.—Let me observe here once for all, that the plates of Schaeffer seldom give an accurate representation of the gills.

Agaricus Cantharellus. Linn. Ray. *Syn.* p. 2. *n.* 5. *Ag. chantarellus* and *alectorolophoides.* Schæff. *Ag. cantharellus.* Bull. *Ag. chantarellus.* Bolt. *Ag. luteolus.* Batsch. *Ag. cantharellus.* Fl. dan.

[Earsham Wood, Suffolk. Mr. WOODWARD.—Woolhope Woods, and Caplar Hill, Herefordshire. Mr. STACKHOUSE.—Single or in clusters: Red Rock plantation, and on the south-west side of the large pool, Edgbaston, in dry soil towards the outside of the woods or where the trees are thin.]

July—Sept.

Var. 2. Gills branched, but not anastomosing: pileus nearly flat.

Bull. 505. 1—*Batsch.* 37.

Grows with the preceding. The whole plant more regular in the growth. Mr. Bulliard has figured another variety with a black stem, pl. 505. f. 2. but I have not yet heard of its being found here. *Ag. pseudo unctuosus.* Batsch.

The lovers of mushrooms may eat this with safety, but it is more tough and less highly flavoured than either the Ag. orcades, or Ag. campestris.

M. Stem cylindrical: pileus funnel-shaped. tubæfor′mis.

Bolt. 106.

Stem cylindrical, ½ inch high, thickness of a pin, yellow. *Pileus* funnel-shaped, yellow, 1-10th to 1-8th of an inch over. *Gills* but little branched. Mr. Bolton says so little about this n his description, that I have been obliged to give the preceding circumstances chiefly from his figures, but the appearance of the middlemost of the larger drawings makes me doubtful, whether what I have taken for veins, be not only intended as shading. If so, the plant is really a Peziza.

Peziza tuba. BOLTON. Moist places, and near rills of water, fixed to the putrid stems of decayed plants.

M. Gills yellow: pileus brown, convex, scored: stem dark brown. fœ′tidus.

Sowerby 21.

GILLS in pairs, shallow.

Pileus nearly semi-globular, about $\frac{3}{4}$ of an inch over.
Stem hollow, cylindrical, hairy ; 1 inch high, thick as a swallow's quill.

First found by Mr. Relhan, in Madingly Wood, Cambridge. Aug.

squam'ula. M. Stem bristle-shaped: pileus whitish, gently convex: gills a few plaits.

Sowerby 93—*Batsch.* 84.

Stem reddish brown, slender as a bristle, very tender. *Pileus* dirty yellow white, gently convex. *Gills* a few imperfect plaits. Hardly 1-10th of an inch in height, and slender in proportion. Batsch. From $\frac{1}{2}$ to 1 inch high. *Gills* 4 or 5. Relhan. *Ag. squamula.* Batsch.

Found by Batsch in the Autumn, affixed to the dead leaf of a poplar. Communicated to me by Mr. Relhan, who found it in Madingly Wood. On decayed leaves, in February. Mr. Brown.

cornuco-pioi'des. M. (Bolt.) Stem twisted: pileus lobed: gills decurrent, distant 3 or 4 in a set.

Bolt. 8. *(Not Schæff.* 9, *nor yet* 243, *though that seems to be a Merulius. Not Battar* 18. *H. nor* 20. *B.)*

About 5 or 6 inches high ; stems 4 or 5 from the same root, near $\frac{1}{2}$ inch diameter. *Pileus* 3 inches over, thin, tough, split into segments, waved and curled at the edge. The whole plant tough, elastic, leathery, of a dead buffy brown or cinnamon colour. Bolt.

Mr. Bulliard has figured what he has called Agaricus cornucopioides, see pl. 208, different from the above though of a dead brown colour, but the gills are branched, and the hollow of the pileus extends down to the root, so that there is properly no stem, or if you had rather, say no pileus, the expansion of the hollow stem at its top supplying the place of a pileus, and bearing the gill-like veins on its outer side. This plant seems decidedly a Merulius. *Ag. cornucopioides.* Bolt.

Shady woods about Halifax, not plentiful. In a little wood near Brakenbed farm, in Ovenden. Sept. 3d. 1787.

(2) *With a stem, and veins underneath.*

M. *undulatus.* See Peziza undulata.

M. Stem funnel-shaped, hollow, expanding at the top like a hollow pileus: gill-like veins branched, purple. purpu′reus.

Fl. dan. 384—*Schæff.* 165. 166—*Bolt.* 103—*Bull.* 150—*Vaill.* xiii. 2. 3.

Plant hollow, gradually enlarging upwards, greatly expanded at the top; border scolloped, turned back, 2 to 3 inches high, 1½ diameter at the top. *Inner surface* dark dirty brown, smooth like vellum. *Outer surface* decorated with rising branchy veins, covered with a bloomy down or powder. Substance tough and elastic. Bolt.

Peziza cornucopioides. Bolton. Bulliard. Oeder.—*Elvella cornucopia* and *punctata.* Schæffer. Ray *Syn. p.* 20. *n.* 17.

Grows single or in clusters, in dry woods.

M. (Bolt.) Stem funnel-shaped, hollow, expanding at the top like a hollow pileus: gill-like veins branched, silvery grey. infundibulifor′mis.

Bolt. 34—*Bull.* 208. 465. 2, *differ but little*—(*Not Bull.* 473, *nor Battar.* 23. *c.*—*Vaill.* xi. 10, *is M. Cantharellus.*)—*Abbot. Fl. Bed. p.* 324.

Stem about 2 inches from the root to the gills, often flatted, or fluted; hollow quite from the root, and running insensibly into the pileus, as the tube of a Convolvulus does into its border. *Gills* branched like nerves, of the same substance with the plant. The whole plant is tough, elastic, of a greyish mouse-colour. Bolt.

Ag. infundibuliformis. Bolt.—*Ag. cornucopioides.* Bulliard.

In Lee-bank-Shroggs near Halifax, and several other places. Bolt. October, 1786.

M. Stem lateral, thick, short; pileus semi-circular, pale brown; gills branched. muscig′enus.

Bull. 288, *and* 498. 1.

Stem solid, pale brown, tapering downwards, near ¼ of an inch high, and about half as thick.

Pileus nearly semi-circular, smooth, pale grey brown, hollowed and uneven, sometimes marked with concentric lines, ½ an inch over.

Gills or Veins, branched, anastomosing, resembling those of the M. cornucopioides.

Ag. muscigenus. Bulliard 288.—*Helvella dimidiata.* ib. 498, 2.—See M. membranaceus.

This plant is found in great plenty in the months of August and September, growing on the Hypnum sericeum, and I never found it on any other moss. Bulliard.

Var. 2. Stemless, circular, white.
About ½ an inch diameter; substance very thin.
On moss in Packington Park. Autumn.

(3) *Stemless.*

membrana′ceus. M. Sitting, membranaceous, smooth, lobed, curled at the edge; veins on the under side branched.

Bolt. 177—*Bull.* 498. 1—*Fl. dan.* 1077. 1.

Root longish, slender, fibrous. Plant ½ to 1 inch over; flat, thin, flexible, tough, red brown above, yellow brown beneath; veins branched and anastomosing. Lobes broad, deep. Bolt.

Helvella membranacea, of Mr. Dickson, who refers to Acta danica, 1. p. 286. f. 1, a work not within my reach, but in his second fasciculus he cites Bulliard, pl. 288, which has a thick lateral stem, sufficiently long in proportion to the size of the plant, but Mr. Dickson has described his plant as being without a stem; I should therefore suppose that his and Mr. Bolton's plant cited above are the same, and that Mr. Bulliard's, pl. 288, is a different species.

Helvella retiruga. Bulliard. *Helvella membranacea.* Bolt. Dicks.

Mossy soil; thatched houses; bogs.

caryophyllæ′us. M. Sitting, concave, shaggy, scolloped and waved at the edge; veins on the under side branched.

Schæff. 325—*Bolt.* 173—*Batsch.* 121.

Upper surface flocky or shaggy, dark clove colour, marked with concentric lines of a darker shade; border curled and scolloped, the edge fringed. *Under* side paler, veins branched; seems dusted over with a brown bloom, or down. Substance, soft, tough, soon turning black and perishing; 1 to 1 ½ inch over. Bolt.

Helvella caryophyllæa. Dicks. *Elvela caryophyllæa.* Schæff. *Ag. tristis.* Batsch. *Helvella caryophyllæa.* Bolt.

On the ground in pine plantations near Bungay, Suffolk. Mr. Woodward.

AGA'RICUS.

Ess. Char. Pileus with gills underneath.
Gills differing in substance from the rest of the plant; composed of two lamina.
Seeds in the gills.

A. Stem central.

1. SOLID and DECURRENT.

(1) Gills white.

Ag. Gills white, 4 in a set: pileus brownish white, convex, concave when old: stem white. ramea'lis.

Bull. 276, and 336—Bolt. 39. D.

Gills decurrent, white.
Pileus white brown, gently convex, turned up when old, about ½ to 1½ inch diameter.
Stem solid, white, ½ inch high, the thickness of a pin.

In Bolton's figure it does not appear that the gills are decurrent; Sibthorpe expressly tells us they are not, and yet he refers to the fig. of Bull, in which they are distinctly so. I suspect it will be found that two distinct species grow in a similar manner on the fallen branches of trees.

Ag. Pseudo-androsaceus and *Ag. ramealis.* Bull. *Ag. candidus.* Bolt.

On sticks, and on the fallen branches of trees. Oct.

Ag. (Bolt.) Gills white, few, very short, in pairs: pileus white, convex: stem white, cylindrical. ebur'neus.

Bull. 188 *and* 118—*Sowerby* 32—*Jacq. misc.* ii. 15. 1—*Bolt.* 4, *the lower figures; very small—Mich.* 73. 6.

Gills white, decurrent, not numerous, in pairs.
Pileus white, smooth, from ¼ to 1¼ inch diameter, or more, convex, or a little conical, edges turning up when old.

STEM solid, white, from ½ to 1 ½ inch high, from the thickness of a small crow, to that of a swan's quill.

This Agaric varies very much in its size, but it has in every state the appearance and the feel of ivory. In damp weather rather viscid, and in wet seasons semi-transparent. When very young some woolly fibres connect the pileus to the stem in place of a curtain.

Ag. virgineus. Jacq. and Sowerby. ***Ag. eburneus,*** and ***ericeus.*** BULL. ***Ag. denticulatus.*** BOLT.

Amongst short grass; often near trees, Edgbaston. Oct.

gigante'us. AG. Gills white, broad, 4 in a set, but irregular: pileus dirty white, funnel-shaped, the edge reflected; stem white, rather tapering upwards.

Buxb. 4. 1.

GILLS decurrent; very numerous.

PILEUS from 4 to 14 inches diameter, turned up when old so as to assume the shape of a funnel.

STEM solid, 2 to 4 inches high, 1 inch diameter, nearly cylindrical, rounded at the base.

Found by Dr. Sibthorpe on Shotover Hill, near Oxford. Oct.

[And by Mr. Dickenson in a meadow at Blymhill, where it formed an airy ring 17 yards in diameter.]

cyathifor'mis. AG. (BULL.) Gills white, 4 or 8 in a set: pileus white: glass-shaped: stem white, nearly cylindrical.

Bull. 248. *A.—Bolt.* 17—*Schæff.* 207, *ill coloured; f.* 3, *the best.—ib.* 39, *more fleshy than our specimens.*

GILLS white, narrow, very decurrent; 4 in a set in the younger, but 8 in the older specimens, from the greater extension of every other long one down the stem.

PILEUS white, satiny, 1 to 2 inches over, irregular at its edge, often tearing as it expands; flattish when young, and not always hollow as BULLIARD says. Edges are at first turned down, even though the central part be much hollowed, but at length they turn up, the whole plant in that state greatly resembling a drinking glass.

STEM solid, white, 1 to 2 inches high, thick as a swan's quill, rather thickest upwards, seldom quite central.

Ag. cyathiformis. Bull. *Ag. umbilicatus.* Bolt. and Schæff. Pastures, Edgbaston. Aug.

Var. 2. Pileus and stem buff-colour.

Bull. 248. *B.*

Pileus without flesh, deeply hollowed. Stem 2½ inches high. Woolhope; Beckbury Hill, Herefordshire, not uncommon. Aug. Mr. STACKHOUSE. Bulliard in his pl. 575 has figured several other varieties which I have not seen.

AG. Gills white: pileus white, bossed, centre yellowish: stem whitish buff, very long. ni'tens.

Sowerby 71—*Schæff.* 238.

GILLS decurrent, white, few, short, in pairs.

PILEUS white, boss yellowish, at first conical, then flat, lastly inverted; 2 inches diameter.

STEM solid, whitish buff, bending, 3 inches high or more, full ¼ of an inch diameter.

Whole plant very viscid, but drying immediately when gathered. Notwithstanding its size and the great length of its stem I suspect it to be only an unusually large plant of the *Ag. eburneus.*

Ag. nitens. SCHÆFF. not of Fl. dan. In Packington Park, Warwickshire. Autumn.

AG. (BULL.) Gills watery* white, pellucid, narrow, 4 or 8 in a set: pileus funnel-shaped, brownish-buff: stem brownish-buff. infundib'uliformis.

Bull. 286—*Bolt.* 61—*Sterbeck* 15. *B. B. very like it, but the stem too short and too thick.*

GILLS very decurrent, white, numerous, narrow, thin, tender, brittle, the long ones often forked.

PILEUS brown buff, thin, pellucid, tender smooth, hollow in the centre, convex and turned down at the edge; 1¼ to 3 inches over: in the small plants the edge is even, but in the larger ones very much plaited or curled.

STEM solid, brown buff, striated, disposed to twist, nearly cylindrical, white within, 1¼ to 2½ inches high, from the thickness of a crow's, to that of a swan's quill.

Ag. infundibuliformis. Bull. *Ag. fimbriatus.* Bolt. Plantations, Edgbaston, after much rain. July.

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* By watery white, is meant, that kind of appearance which is given to white linen or paper by wetting it; the wetting diminishing the intensity of the whiteness, but increasing the transparency. The term will likewise be occasionally used to express a similar effect on other colours.

Var. 2. Gills but little decurrent, turning to a watery jelly when bruised. Pileus dead white, thin, funnel-shaped : stem white, smooth, tough, pellucid.

Bolt. 61.

In the Park at Packington.

obe′sus. AG. (BATSCH.) Gills white, greatly decurrent, branching and inosculating : pileus white, nearly flat : stem white, very thick, short, inversely conical.

Batsch. 216—*Schæff.* 307 ; *too much coloured.*

GILLS white, numerous ; very narrow, so decurrent as to unite the pileus and the stem into one uniform substance. In general there is a short and a long gill alternately, sometimes there are 4 in a set, but the long ones frequently divide into two as they approach the edge of the pileus, and moreover the branches unite one to another so as to form a kind of net work.

PILEUS white, turning brown, smooth ; at first a button, then growing flat, at length the edges rise so as to form a shallow concavity at the top, but the extreme edges still turned down. Diameter 1 ¼ to 1 ½ inch.

STEM solid, white, widening so much upwards as to be nearly equal to the breadth of the pileus ; often flatted ; about 1 ½ inch high. *Root* none but the rounded end of the stem.

Ag. clavæformis. Schæff. *Ag. obesus.* Batsch. Pastures amongst moss. Edgbaston. Aug. 1790.

*Var. 2. Pileus pale dead brown, violet coloured at the edge.

Bolt. 146.

On stumps of trees, Northowram. Aug. 1791. BOLT.

pistilla′ris. AG. Gills white, in pairs, very short : pileus whitish, convex ; stem whitish, conical, crooked.

Batsch 62, (*but a little different in the colour of the Pileus.)*

GILLS white, decurrent, in pairs, hardly exceeding the 20th of an inch in length.

PILEUS whitish, uniformly convex, about 1 ¼ of an inch over, the edges curled inwards about the stem.

STEM solid, whitish, ¾ inch long and ¼ diameter, thickest at bottom, bent in one or two directions.

I have never found it in any other state than that just now described.

Ag. risigallinus. Batsch. Amongst grass and moss. Edgbaston. 26th Aug. 1791.

AG. Gills yellowish or greyish white, 4 in a set: pileus whitish, tufted, convex, centre depressed: stem slanting, more or less spotted. ti′grinus.

Bull. 70—*Sowerby* 68.

GILLS slightly decurrent, grey white, 4 in a set.
PILEUS whitish, penciled with reddish brown hairy scales, gently convex, rather bossed, hollow when old, full 2 inches over.
STEM solid, white, more or less tufted like the pileus, 1 to 2 inches high, thick as a raven, or a swan's quill, tapering downwards.

Substance of the plant leather-like. It varies very much as to the quantity of its tufted spots.

Ag. tigrinus. BULL. On decayed trunks of trees, particularly on the elm. [Powick near Worcester. Pendarvis, Cornwall. Mr. STACKHOUSE. Packington Park, amongst moss.]

AG. Gills white, 4 in a set: pileus pale mouse, gently convex, edge turned in: stem cylindrical, upright. ca′seus.

Sowerby 61, 122—*Bolt.* 40—*Bull.* 400, *the same, but more coloured.*—*Schæff.* 78.

GILLS decurrent, dead white or yellowish white, thin, numerous, narrow, dry, 4 in a set.
PILEUS pale mouse, clothy, smooth, gently convex with the edge turned in, 3 inches over.
Flesh dry, brittle, not fibrous, resembles cream-cheese.
STEM solid, white, cylindrical, upright, bulbous at the base.

This taken from Mr. Bolton, but his trivial name *mollis*, must be rejected, as it has before been applied to a different species, and particularly to one of Schæffer's, which is also a British plant.

Schæffer's name *(albellus)* is also prè-occupied by a different species. *Vide* Scop. *n.* 1462.

Ag. pileslarius. Bull. *Ag. mollis.* Bolt. Dry woods and pastures about Halifax. Mr. BOLTON. [Pendarvis, Cornwall, in Oct. Mr. STACKHOUSE.]

*Var. 2. Gills snow white: stem very large, with a large ring. Mr. STACKHOUSE.

Of a very soft and pulpy consistence. Near Bath. Mr. STACKHOUSE.

Liste'ri. AG. Gills whitish, numerous and narrow: pileus smooth, irregular, flattish, depressed in the centre: stem white, eccentric: juice like milk.

Fl. dan. 1132—*Bull.* 200—*Bolt.* 21—*Sowerby* 104.

GILLS decurrent, white, or yellowish white, numerous, uniform, or in pairs, very fine, close set like the teeth of an ivory comb, not 1-10th of an inch broad.

PILEUS white, smooth, irregular, flattish, but more or less depressed; edge turned down; from 3 to 7 inches over; generally set sloping on the stem.

STEM solid. whitish, 2 inches high and 1 in diameter, generally eccentric, blunt and rounded at the bottom. Sometimes 3 or 4 grow together, very large, even 10 inches diameter, remaining a long time in dry seasons. Milky juice very biting, with a bitterish taste.

Haughwood, Capler Hill, Woolhope, Herefordshire. Specimen and observations from Mr. STACKHOUSE.

This, and its varieties, have very generally been supposed by the English botanists to be the *Ag. piperatus.* LINN—who led them into the error, by quoting Haller and Bauhine for synonyms to his *piperatus*; synonyms which undoubtedly belong to the species described by Dr. Lister, but by no means according with the Swedish plant. To avoid perpetuating this confusion, I have rejected the trivial name *piperatus*; though applied to it by J. Bauhine, who seems first to have given a good description of it. *J. B. hist.* iii. p. 825. cap. 6. Dr. Lister seems first to have found it in England. His description, partly copied from J. Bauhine, may be found in *Ray. cat.* p. 123, and also in *Ray. hist.* p. 88. c. 9. The doctor observes that the juice is mostly poured out by the external parts of the plant, that it did not change the surface of polished steel, that it became green when dried, but still retaining its acrid biting quality. He observed too that the plant was much eaten by insects and snails. RAY *Syn.* 4. 14.

Ag. lactifluus acris. BULL. *Ag. diperatus.* BOLT.

Var. 2. Gills connected by transverse threads: pileus light drab colour, very viscid: stem tapering downwards.

GILLS decurrent, white, yellowish with age, irregular, much broader than in the preceding.

PILEUS light brown or drab colour, hollowed in the centre, 4 or 5 inches over.

STEM solid, white, inversely conical, 1 ½ inch long, ¼ to ½ inch diameter; generally eccentric.

The juice white like milk, hot and acrid, but not properly peppery.

Under large beach trees, plantations, Edgbaston. Oct.

Var. 3. Gills yellow white, numerous, and narrow: pileus white, oblique.

Battar. 17. *A*—*Schæff.* 83—*Batsch.* 59.

Ag. piperatus. Batsch. In woods, Woolhope, Herefordshire. Mr. STACKHOUSE.

Var. 4. Gills white: pileus buff, with yellow brown concentric circles.

Bull. 104.

Gills decurrent, white, very numerous, mostly 4 in a set. *Pileus* hollow in the centre, edge turned down; 3 to 4 inches over. *Stem* white, tapering downwards, rounded at the end, 1 to 1 ½ inch high, and the same in diameter. *Juice* milky, abundant, very acrid. BULLIARD. *Gills* white, in age turning faintly yellow. *Pileus* when young cushion-shaped, and the margin rolled in, but even then it is always depressed in the centre; surface somewhat velvety, strongly marked with concentric lines of a fulvous colour. Mr. WOODWARD.

In groves, or amongst bushes on a clayey soil near Bungay. Mr. WOODWARD.

Var. 5. Pileus greenish brown, flecked and gluey.

GILLS a little decurrent, white, 4 in a set.

PILEUS flat, rather depressed, edge turned in, greenish brown, flecked and gluey, 2½ inches over.

STEM solid, white, about 2 inches high, near ½ an inch diameter, cylindrical, not quite central. Milk white.

In Lord Aylesford's Park at Packington. Autumn.

Very like the Ag. prasinus of Schæffer, but differs in the colour of the gills and in having a milky juice. Bulliard's plate 591, called *Ag. orcella*, may possibly be other varieties.

Besides the above, I shall introduce to the acquaintance of the reader several other Agarics with milky juice, some mild, some acrid, which inadvertently, or as it would seem merely from the resemblance of the juice, have been supposed to belong to one or other of the two lactescent species of Linnæus.

adhæsi′vus. AG. Gills pure white, 4 in a set: pileus brown white, the centre darker: stem white, gently tapering upwards.

GILLS moderately decurrent, very white, not crowded, 4 in a set.

PILEUS brown white, darker in the centre, flat, but a little bossed; edge turned down; 1 ½ to 2 ½ inches over, very viscid. *Flesh* white, pithy.

STEM solid, pithy, white within and without, 3 inches high, nearly ½ inch diameter, thickest downwards, seldom quite straight.

The pure milk whiteness of the gills remains unchanged during the life of the plant. The viscidity of the pileus increases by keeping, so as to become uncommonly adhesive. Growing single, or in clusters.

Red Rock Plantation, Edgbaston. Sept.

fra′grans. AG. Gills white, 4 in a set: pileus brownish white, semi-transparent: stem brown white.

Sowerby 10.

This Agaric is by no means uncommon with us, and if it grow in other parts, it is matter of surprise that it should have remained unnoticed so long. It imparts a fragrant odour like that of new mown hay. Its colour approaches nearly to our general notion of a stone colour, and does not vary throughout the different parts of the plant. The transparency of the pileus shewing the form of the Gills through its surface, it might be called striated, as well as other fleshless Agarics; but this distinction, when it does not arise from colour, or some peculiar structure of the pileus itself, is with more propriety omitted. Major VELLEY.

GILLS slightly decurrent, not very numerous, 2 or 4 in a set.

PILEUS dead brown, white, smooth, gently convex but rather dimpled in the centre, becoming hollow with age but not turning up at the edge.

STEM solid, fibrous, cylindrical, dead brown white, 2 to 2 ½ inches high, thick as a crow or a goose quill.

The Pileus is not always so transparent as to shew the gills through it. The cupping of the pileus as the plant grows old tears the gills near the place of their attachment to the stem. It smells like hawthorn in blossom, and its scent is so strong that it may be perceived at a considerable distance even before you see the plant.

[Among the firs on Claverton Downs near Bath. Major VELLEY.—Edgbaston Park, under Spanish Chesnut Trees.]
Oct.

AG. (BATSCH.) Gills dirty white, 4 in a set: pileus cool brown, conical, scored: stem cool brown, cylindrical, cottony at the bottom. umbrac'ulum.

Batsch. 4.

GILLS a little decurrent, dirty white, 4 in a set, not numerous.

PILEUS pale brown, conical, scored, cracking at the edge, but otherwise tough and strong; 1 inch from the edge to the apex, and as much in diameter at the base.

STEM solid, pale brown, cylindrical, 3½ inches high, thick as a thin goose quill, covered with a white cottony substance at the base.

This is an elegant plant and with us a rare one.

Ag. sanguineus. Batsch. In the hollow of a stump; Church Lane, Edgbaston. 25th September, 1791.

AG. Gills brownish white, irregular, but mostly 4 in a set: pileus pale brown, darkest in the centre, convex: stem pale brown, smooth, cylindrical. agres'tis.

GILLS decurrent, brownish white, rather numerous, mostly 4 in a set, but the long Gills are sometimes in pairs, and united towards the stem, in which case the smaller Gills are either excluded, or else they open wide towards the rim, and then some small ones are irregularly placed between them.

PILEUS pale brown, darker in the centre, smooth, very thin; regularly convex, but the edge a little expanding, and extending rather beyond the Gills, 1 inch over.

STEM solid, pale brown, cylindrical, smooth, from 2 to 3 inches high; thick as a crow quill.

Whole plant watery, and semi-transparent in wet weather.

Pastures. Edgbaston Park. 7th Nov. 1790.

AG. Gills white, 4 in a set, long ones about 17: pileus brownish, gently convex, central boss dark brown, much elevated: stem pale brown, cylindrical, firm, crooked. umbona'tus.

GILLS a little decurrent, white, brittle, 4 in a set, long ones about 17, extending beyond the edge of the pileus.

PILEUS semi-transparent, yellowish brown, with a darker coloured knob or boss raised high in the center; ½ inch diameter.

Stem solid, semi-transparent yellowish brown, slimy, firm, 1½ inch high, cylindrical, thick as a crow quill, crooked.

Edgbaston Park. 7th Nov. 1790.

membrana'ceus. **Ag.** (Vahl.) Gills brownish white, 4 in a set, the short Gills unusually long: pileus pale chesnut, hollow, but bossed in the centre: stem pale brown; root bulbous.

Fl. dan. 1012.

Gills decurrent, brownish white, 4 in a set, the smaller series unusually long.

Pileus pale reddish brown; glass-shaped, but with a small rising in the centre; thin and skinny, irregular, with one or more large notches in the edge, 2 to 5 inches over.

Stem solid, spongy, pale brown, nearly cylindrical, 2 to 4 inches high, from ¼ to ½ inch diameter; flesh, or rather pith, with several irregular perforations.

Root an oval bulb formed by an enlargement of the stem.

Ag. membranaceus. Fl. dan.

In fir plantations, Edgbaston. Oct. 1790.

Var. 2. Pileus yellowish white, flat, bossed: stem white.

Gills decurrent, brownish white, 4 in a set.

Pileus yellowish white, nearly flat, with a permanent, boss in the centre, 6 or 7 inches over.

Stem solid, spongy, white, 4 inches high, full ½ inch diameter, cylindrical, but rather bulbous at the base.

This plant is at first sight very unlike the inverted funnel-shaped plant of the Flora danica, though on a strict examination there does not appear sufficient reason to consider it as distinct; but this is certainly the most perfect state of the plant.

In Lord Aylesford's Park, Packington, Warwickshire. Autumn.

limaci'nus. **Ag.** Gills dirty watery white, not numerous, 4 in a set: pileus pinky brown, nearly flat, edge turned down: Stem cylindrical, buff, with brown scales.

Schæff. 36. 5. 6. 7.

Gills decurrent, brownish watery white, strong and fleshy, not numerous, four in a set.

PILEUS pale pinky brown, from 2½ to 4 inches over, nearly flat, but a little bossed in the centre, and the edge turned down. When full grown quite flat, the central projection disappearing; and when old quite funnel-shaped. Surface clammy when wet, satiny when dry. *Flesh* brownish white.

Curtain in the young plants composed of whitish cobweb-like, straight threads, stretched from the stem over the edge of the pileus, and leaving a permanent dark-coloured mark on the stem.

STEM solid, buff, yellow at the top, flecked with brown scurfy scales below, 3 to 4 inches high, ½ to 1 inch diameter, nearly cylindrical, seldom quite straight.

This plant ought to have retained Schæffer's trivial name of *glutinosus*, as he first figured and described it, but Mr. Curtis having given that name to another more common English species, which he has well figured and described, I thought it better to take the name of Scopoli which has been adopted by Mr. Dickson.

Ag velatus. Bot. arr. *ed.* ii. Fir plantations at Barr, Staffordshire. Sept. 1791.

AG. Gills grey white, much branched: pileus convex, entirely covered by the membranaceous curtain. **vela'tus.**

Sowerby 7—*Schæff.* 36. 1. 2. 3. 4.

GILLS somewhat decurrent, whitish, with a mixture of ash-colour, twice and sometimes oftener branched, so that the number counted at the margin is at least four times the number counted at the stem.

PILEUS varies from ash-coloured to brown or yellowish white.

Curtain at first clear and transparent, resembling a thin bladder, entirely covering the pileus and connected with the stem, on which it leaves a spurious ring. It remains in shreds round the edge of the pileus, and at length entirely disappears. This curious kind of curtain seems peculiar to this species.

STEM solid, brown, paler upwards, largest at the bottom.

Ag. glutinosus. Schæff. and Sowerby. Pine Groves at Earsham Broome, and Kirby, Norfolk. Mr. WOODWARD.—Plantations at Packington, Warwickshire.

AG. Gills white, 4 in a set: pileus reddish brown, woolly and tufted; stem yellow brown or olive, bulbous at the base; *Ring* woolly, permanent, **cumula'tus.**

Bolt. 141—*Bull.* 377, *but more of a red cast than our specimens.—Bolt.* 140, *in a less advanced state of growth.*

Gills decurrent, white, edges reddish brown when the seeds begin to be discharged; not very numerous, 4 in a set, shortest series very short.

Pileus reddish brown, darkest in the center, convex, from 3 to 6 inches over, woolly and tufted, edges turned in, but cracking with age and turning up. *Flesh* spongy, white, thin at the edge.

Stem solid, olive brown below, reddish brown above the ring, with whitish streaks; 4 to 6 inches high, 1-3d to $\frac{1}{2}$ inch diameter, seldom straight; thickest downwards, bulbous at the base.

Ring permanent, tough, woolly, yellowish white, turned down on the stem.

Should this in its younger state appear to be veiled by the curtain like the preceding, it may rank only as a variety of that, but I have never found it with such an appearance.

Ag. annularius. Bull. *Ag. congregatus* and *melleus.* Bolt. Grove, Edgbaston, on the stumps of trees which had been cut down rather below the level of the ground. It grew in prodigious quantities; in some places as many together as would have filled half a bushel. Oct.

Var. 2. Gills 4 or 8 in a set, by their decurrence streaking the top of the stem quite down to the ring: pileus wrinkled or plaited at the edge.

Fl. dan. 1013—*Schæff.* 74.

This differs very little from the preceding, but from being less crowded in its growth assumes a more perfect form. By the more full expansion of the pileus some of the long gills separate from the stem, which causes the appearance of 8 in a set in those parts; and indeed in this species the extent of the decurrence of the long gills is very variable. The discharge of the seeds which tinges the edges of the gills, the ring, and the top of the stem of a rich red brown, seems always to begin in that part of the gill next to the stem. In the young and unexpanded plants or buttons the pileus is covered with a knap or frize of a brown glutinous wool, and the colour is that of an olive.

Ag. obscurus. Schæff. *Ag. melleus.* Fl. dan. Edgbaston lanes, on sandy hedge banks. Oct.

Var. 3. Very large: stem full 1 inch diameter, both it and the curtains tinged with bright yellow. Mr. Stackhouse.

*AG. (SCOP.) Gills whitish, small, few : pileus tawny red, convex, smooth : stem whitish, thickest in the middle. coralloi'des.

Battar. 9. *F—Scop. subt.* 35.

GILLS decurrent, thinly set.

PILEUS brownish, ¼ of an inch over.

STEM solid, dirty white, 2 to 3 inches high, ¼ of an inch diameter. One root sends out several stems, and also several jagged substances, the imperfect rudiments of other stems. SCOP. BATTAR. DICKSON fasc. 1. 16.

In hollow trees. Oct.

AG. Gills white, very short : pileus orange buff, tufted, semi-globular : stem buff. au'reus.

Bull. 92—*Sowerby* 77.

GILLS decurrent, white, very short, 4 in a set.

PILEUS orange buff, globular when young, semi-globular when expanded, 2 inches diameter, thinly sprinkled with small tufts of dark hair. *Flesh* uncommonly thick, buff coloured. *Curtain* white.

STEM solid, buff, 2 to 3 inches high, rather tapering downwards, near ½ inch diameter, crooked at the root.

Ag. aureus. BULL. Inserted on the authority of Dr. Sibthorpe, who found it in Shotover plantations, Oxfordsh. Sept.

A. Gills yellow white, changing to dark red brown : pileus greenish buff, scurfy, convex, edge turned in : stem white, to brown : ring permanent. versi'color.

GILLS decurrent, yellowish white, changing when old to dark brown, 2 or 4 in a set.

PILEUS greenish buff, scurfy, most so in the centre, convex becoming flat with age, but the edge much curled in ; 1 to 4 inches over.

STEM solid, but spongy, white, changing to brown, thickest downwards, 2 inches high, thicker than a swan's quill. *Ring* permanent. *Root* bulbous.

This is a rare species. I found it only once, and then near the bridge in Edgbaston Park which goes over the stream that feeds the large pool. July, 1792.

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* This mark is prefixed to such species and varieties as have not fallen under my own observation.

odo'rus. Ag. Gills white, 8 in a set; pileus glaucous green, nearly flat: stem white, cylindrical.

Bull. 176—*Sowerby* 42.

Gills decurrent, white, 8 in a set; numerous, narrow.
Pileus pale green, sometimes nearly white, sometimes bluish; nearly flat, but sometimes bossed; from 2 to 4 inches diameter.
Stem solid, white, cylindrical, 1 to 1½ inch high, as thick as a goose quill.

Bulliard informs us that it has a strong smell, approaching to that of a Gilliflower; that it dries well, but soon loses its odour.

Moist weeds, amongst decayed leaves. Found by Dr. Sibthorpe in Shotover plantations, Oxfordshire. Sept.

(2) Gills brown.

casta'neus. Ag. Gills yellow brown, 4 in a set, but often irregular and branched: pileus concave, satiny: stem rich yellow brown.

Bolt. 22.

Gills decurrent, rich yellow brown, numerous, 4 in a set, those of the first and second series sometimes branched.
Pileus rich yellow brown, clammy when fresh, satiny when dry, 2 to 7 inches in diameter, concave, but bossed in the centre; edge turned down, but when large and fully expanded the whole turned up and quite funnel-shaped. *Flesh* spongy, yellowish white.
Stem rich yellow brown, cylindrical or tapering, 1½ to 3 inches high, and half inch diameter.

Gills rather paler than the pileus. *Stem* yellowish at the base, the colour of the gills upwards. Mr. Woodward. *Pileus* varying from deep chocolate to chesnut; darkest in the centre, with sometimes a few scales. *Stem* generally tapering.

This is a very common species, growing in numerous circular patches under shady trees.

Ag. cinnamomeus. Bolt. Woods near Bath. Powick, Worcestershire. Mr. Stackhouse.—Hedge banks, Castle-bromwich. Mr. Woodward.—Pine Grove, Kirby, Norfolk. Edgbaston, under large oaks and beeches. Aug.—Dec.

Var. 2. Gills 4 to 8 in a set: pileus concave, dotted.

Schæff. 252.

Gills decurrent, from cinnamon to chesnut, paler than the stem, numerous, 2 long gills often united near the stem, and then they include only one intermediate gill, with a little tooth on each side.

Pileus from full cinnamon to chesnut, dotted with little pits, the central part concave, and the edge turning up with age.

Stem solid, brown cinnamon, crooked, thinnest downwards, $\frac{3}{4}$ to 2 inches high, 3-8ths diameter.

Fl. dan. 1011, (*cyathiformis*) is by Mr. Vahl referred to the above species of Schæffer, but the Danish plant is described as having a woolly pileus, and is figured with a *hollow* stem, whereas Schæffer expressly says that his plant has a *solid* stem.

Ag. cyathiformis. Schæff. Pastures, Edgbaston. Oct.

rubes'cens. **Ag.** (**Schæffer.**) Gills reddish brown, 8 in a set: pileus reddish brown, with darker concentric circles.

Fl. dan. 1069. 2—*Schæff.* 73.

Gills decurrent, reddish brown, narrow, 8 in a set.

Pileus reddish brown, marked with concentric circles of a darker shade; in general flat, but hollow in the centre, and waved and bent down at the edge, clothy to the touch, 1½ to 3 inches diameter; sloping.

Stem solid, reddish brown, whitish within, 1 to 3 inches long; near ½ inch diameter, nearly cylindrical, but rather thinner downwards, generally eccentric.

Juice white like milk, hot and acrid like that of Mezereon or Cuckowpint.

Ag. rubescens. Schæff. Plantations, and pool dam, Edgbaston, in a clayey soil. Sept.

sero'sus. **Ag.** Gills pale brown, numerous, 4 in a set: pileus cinnamon colour, flecked, gently convex, but sinking in the middle: stem cinnamon, smooth, crooked: juice like whey.

Bull. 54. *nearly resembles it, but the pileus does not sink in the middle.*

Gills a little decurrent, brown, numerous, in fours, regular.

Pileus cinnamon colour, fleckered with darker shades; gently convex but a little hollowed in the middle, darkest in the hollow; from 1 to 2 inches diameter.

Stem solid, smooth, cinnamon coloured, central, crooked, cylindrical, 2 inches high, and 3-8ths diameter.

Juice dilutely milky, not acrid.

Pastures, Edgbaston. Oct. 1790.

lactif'luus. **AG.** (LINN.) Gills red brown: pileus dark red brown: stem buffy: juice white, milky, mild.

Schæff. 5—*Sowerby* 204.

GILLS decurrent, red brown, but paler than the pileus.
PILEUS rich red brown, nearly flat, 4 inches over.
STEM solid, reddish buff; 2½ inches high, ¾ inch diameter. Mr. STACKHOUSE.

Ag. stipitatus. Pileo plano carneo lactescente, lamellis rufis, stipite longo carneo. LINN. Sp. Pl.

STEM 1 to 4 inches high, reddish, somewhat thickest and brown at the base, paler and smaller upwards.
PILEUS of a deeper colour, from 1 to 4 inches broad, generally smooth, flattish but depressed in the centre, and bent in at the margin; sometimes marked with one or two circles near the edge.
GILLS paler than the pileus; long ones sometimes branched at the base. The juice white, at first mild, but leaving a pungent taste on the tongue. Mr. WOODWARD.

Ag. lactifluus. Schæff. Sent from Woolhope, Herefordshire, by Mr. STACKHOUSE.—Pine groves, near Bungay, Suffolk. Mr. WOODWARD.

Var. 2. Pileus funnel-shaped: stem rich red brown, thinner downwards, with yellow bristly hairs at the base.

GILLS decurrent, red brown, numerous, 8 in a set, long ones sometimes cloven, paler than the pileus; brittle.
PILEUS red brown, funnel-shaped, 2 to 3½ inches over. *Flesh* spongy, thin, reddish white.
STEM solid, rich red brown, redder than the pileus, tapering downwards, redder at the base, and set with bristly hairs, often crooked and eccentric, 2 inches high, 3-10ths diameter.

The whole plant, but especially the gills, abounding with white milky juice, at first mild, but at length leaving a slight pungency in the throat.

Edgbaston Park, under the large clump of beeches. July.

pilo'sus. **AG.** (SCHÆFF.) Gills brown, 4 in a set: pileus and stem yellowish, tufted with darker hair.

Sowerby 164—*Schæff.* 80—*Fl. dan.* 491.

GILLS decurrent, brownish, numerous, broad.
PILEUS yellowish, convex, flattish, or bossed, tufted with hairs. *Flesh* tough.
STEM solid, cylindrical, twisted, tapering at bottom, yellow, but less so than the pileus, rough with dark hairs, 1½ to 4

inches long, thick as a finger, firm, white within, above the ring naked. *Ring* permanent. *Curtain* fugacious. *Root* closely compressed and tapering. In those clusters which I gathered, though the stems were large, yet they tapered so much that the junction of them all was not equal to the size of a single stem. The young ones come out straw-coloured.

Specimens, drawing and description, from Mr. STACKHOUSE.

Ag. pilosus. Schæff.

On stumps of pear and oak. (Vide Ag. floccosus.)

Var. 2. Pileus tawny, uniformly shaggy with hair: stem white: curtain white: ring permanent.

Bolt. 42.

I am indebted to Mr. Stackhouse for a specimen of this, and also for the following remarks: it is a fasciculated Agaric growing on trees. The part of the stem above the ring quite smooth. *Pileus* clothy and hairy, or regularly woolly all over. I think it a variety of *Ag. pilosus.*

Ag. villosus. Bolt. Woolhope, Herefordshire.

Sept. 1791. Mr. STACKHOUSE.

Var. 3. Gills paler than the pileus: pileus tufted: stem smooth, bulbous at the base.

At Pendarvis, Cornwall. Mr. STACKHOUSE. Oct.

AG. Gills brown cinnamon, claws white; 4 or 8 in a set; pileus buffy yellow, flattish; stem cylindrical, yellow. delicatulus.

Fl. dan. 1008. 2. *will give some idea of it, putting out of the question the hollow stem, and the too great regularity of the gills.*

GILLS a little decurrent, rich cinnamon, white where fixed to the stem, 4 in a set, 8 in the larger plants; the long gills very broad, tearing from the stem when the pileus is expanded.

PILEUS buffy yellow, thin at the edge, nearly flat, but concave in the centre when old.

STEM solid, yellow, shining, 3 inches high, thick as a raven or goose quill, cylindrical.

Ring turned down on the stem, fugacious.

The whole plant very brittle, tender, and juicy, a very small pressure destroying the colours, and giving them a watery dark appearance.

Edgbaston, by the stews, rare. 20th May, 1792.

Var. 2. Gills brown, mottled, edges and claws white; 4 in a set: pileus buff: stem yellowish white.

GILLS decurrent, brown, mottled, not very numerous, 4 in a set. The edge of the gills, and the portion of the long ones next to and decurrent on the stem, white.

PILEUS buff-colour, flattish, with a small pointed central boss, edge turned down, surface leathery, 1 to 1¼ inch over. *Flesh* white.

STEM solid, buffy white, glossy, variously bent, cylindrical, 3 inches high, thick as a raven quill, suddenly thickening at the top at its connection with the pileus. *Flesh* yellowish; but quite white in the centre.

Curtain whitish, fugacious, sometimes leaving fragments on the edge of the pileus and on the stem.

Pastures, Edgbaston. 20th May, 1792.

(3) GILLS red.

carneo-al'bus. AG. Gills salmon-coloured, not numerous, 2 or 4 in a set: pileus and stem white.

GILLS decurrent, salmon-coloured, mostly in pairs, narrow, not crowded.

PILEUS white, polished, centre rather depressed, edge turned down, about 1 inch over.

STEM solid, white, cylindrical, about 1 inch high, thick as a crow quill.

Drawing and description from Mr. Stackhouse.

rosel'lus. AG. (BATSCH.) Gills pinky red, few, 4 to 8 in a set: pileus brown red: flesh red: stem pinky red.

Batsch. 99.

GILLS decurrent deep pinky red, not numerous, 4 in a set, but sometimes 8 from the intervention of other little teeth.

PILEUS brown red, rather scurfy, convex, but a little hollowed in the centre; ¾ to 1¼ inch diameter. *Flesh,* thin, red.

STEM solid, pinky red, cylindrical, but thickening at the top, thick as a crow quill, 1½ to 2 inches long. In a section of it, the central part is less compact and paler than the outside.

This elegant little Agaric is seldom found in full perfection, as it soon shrivels and loses its brilliant colours, but it does not rot.

Ag. rosellus. Batsch. Amongst old alder stumps, in the alder plantation, Edgbaston. 2d Oct. 1791.

AG. Gills pinky liver colour, numerous, in pairs: pileus pinky brown, satiny, flat: stem pinky above, yellowish below, tapering downwards. jecori'nus.

GILLS decurrent, rich pinky liver colour, with age blacker at the edges, and deep tan-leather colour at the sides; in pairs: the small gill varying in size, but very small in proportion to the large one; the large gill sometimes forked.

PILEUS pinky brown, convex and bossed when young, flat and more liver coloured when older, but the edge always turned in; surface smooth, shining, satiny, from 3 to 5 inches over. *Flesh* pinky white.

STEM solid, spongy, pinky brown upwards, yellow brown below, tapering downwards, rarely straight, 2 to 3 inches high, ½ to 1 inch diameter. *Flesh* fine rhubarb yellow.

From some appearances which took place in the pickle in which it was preserved, I suspect that in favourable circumstances it will be found to contain a milky juice.

Pine plantations at Barr, near Walsall, Staffordshire. 20th July, 1792.

AG. (LINN.) Gills flame-coloured, narrow, regularly branched: pileus rich red brown, flesh orange colour: stem orange, tapering downwards. delicio'sus.

Fl. dan. 1131.

Ag. stipitatus, pileo testaceo, succo lutescente. LINN.

GILLS decurrent, bright aurora or flame coloured, very narrow, regularly branched in this manner—at some distance from the stem each long gill divides into 2, each of these divisions again divides into 2, and lastly each of these subdivisions before reaching the edge of the pileus divides again; the ends of the last branchings next to the edge of the pileus thicker than the other parts.

PILEUS rich red brown, nearly flat, but the centre a little hollowed, and the edge turned in; from 1 ½ to 3 inches over. *Flesh* pale orange.

STEM solid, orange coloured, tapering downwards, 1 to 2 inches high, and ¼ to 3-8ths inch diameter; hollow with age.

Juice rich yellow. It soon shrivels and feels remarkably light. The specimens from which the above description was taken having been carried some miles in an open basket, gives me reason to apprehend that it is not so exact as I could wish. I find no figure exactly corresponding with this beautiful and remarkable plant, but on the authority of Mr. Hudson, and Mr. Relhan, the *deliciosus* of Schæffer must be inserted as a variety. Mr. Stackhouse observes that the yellow juice soon turns green, and that the stem becomes hollow from the shrinking of the central substance, the cavity being wider above and below.

Fir plantations in Scotland. Rivelstone Wood, near Edinburgh. [In fir plantations on barren hills at Barr, Staffordshire.] 26th Sept. Oct.

It is much esteemed in Italy, and is exposed in the markets. See Ag. cæsareus.

*Var. 2. Gills brick red, branched: pileus brick red, marked with darker and paler concentric circles: stem spotted: juice saffron colour.

Schæff. 11—*Sowerby* 202.

Generally solitary, fleshy, juice saffron-coloured. *Pileus* hemispherical, depressed in the centre, raised and arched towards the edge, colour of brick, with concentric circles alternately *paler*. *Gills* brick red, branched. *Stem* cylindrical, spotted, short, thick, somewhat hollow; without curtain or ring. Schæff.

Ag. deliciosus. Schæff. Woods near Guildford. Aug.—Oct. Mr. Hudson.—Dry pastures. Gogmagog Hills. Mr. Relhan.

Var. 3. Gills pale brick colour, four in a set; pileus a pale brick colour: juice golden yellow.

Bolt. 144.

Stem cylindrical, solid, hollow with age. No curtain. *Gills* narrow, brittle. *Pileus* at first convex, becoming horizontal, and lastly funnel-shaped, marked with darker concentric circles, but these are not always equally distinct, and in some plants hardly perceptible. Every part of it when wounded affords a copious discharge of yellow acrid juice. Bolt. p. 144.

Stem solid, cylindrical, brown olive, blotched, 2 inches long, ½ to 1 inch diameter. *Pileus* always more or less hollowed in the middle, a little woolly, from 3 to 5 inches over. Specimen from Mr. Stackhouse.

Ag. (Linn.) Gills pale, pinky red, numerous, in pairs; pileus dirty yellow white, woolly, depressed in the centre; stem pale yellow. **pipera'tus.**

Fl. dan. 1068—*Bull. Ag. necator, with no number to the plate, is a variety in which the pileus is more red than our plant, and the gills a less pleasant colour. Sowerby* 103.

Gills decurrent, a beautiful blush colour, numerous, in pairs, broader than those of the Ag. Listeri.
Pileus dirty brownish red, or yellowish white, woolly, flattish, but the edge turned down, and the centre depressed; 3 inches over. *Flesh* white.
Stem solid, pale yellow, not central, nearly cylindrical, 1½ to 2 inches high, and ½ an inch diameter. *Juice* white, milky, very hot and biting.

Ag. stipitatus, pileo planiusculo lactescente, margine deflexo, lamellis incarnato pallidis. β *Pileus convexo-depressus, carnosus, lactescens, margine inflexo, tomentoso.* Lamellæ *pallidæ.* Stipes *nudus, fistulosus, pallidus.* Fl. Suec. 1195. —Schæff. 12. seems a variety with a yellow juice; and Bull. 529. 2. another variety.

Specimen, drawing, and description, sent to me by Mr. Stackhouse, who rightly conjectured it to be the real Ag. piperatus of Linn.

Ag. torminosus. Schæff. Haughwood, near Woolhope, Herefordshire. Mr. Stackhouse.

(4) Gills buff.

Ag. Gills buff, mostly in pairs: pileus white, smooth, nearly flat: stem white. **eric'eus.**

Bull. 188.

Gills decurrent, buff, in pairs.
Pileus white, smooth, gently convex, the edge turned down, 1 to 1½ inch diameter.
Stem solid, white, cylindrical, 1 to 2 inches high, nearly as thick as a swan's quill.

Nearly allied to the Ag. eburneus, from which it differs principally in the colour of the gills.

Ag. ericeus. Bull. In Lord Aylesford's Park at Packington. In Edgbaston Park, amongst grass. Oct.

dul'cis. Ag. (Huds.) Gills buff, numerous, 8 in a set: pileus dark buff: stem buff: juice milky, mild.

Bull. 224—*Bolt.* 3.

Gills decurrent, buff, numerous, 8 in a set, the little teeth or smallest gills very irregular in size.
Pileus concave, dark buff approaching to orange, 1 ½ to 2 and sometimes 5 inches over. (Our specimens not bossed in the centre as in some of Bulliard's figures.) *Flesh* white.
Stem solid, irregularly hollow with age, buff colour, 2 inches high, rather thicker than a swan's quill.

Juice white, milky, not acrid, or peppery. Ray *Syn.* 4. 15.

Ag. lactifluus dulcis. Bull. *Ag. lactifluus.* Bolt. Plantations, Edgbaston. Oct.

cimica'rius. Ag. Gills buffy: pileus deep chesnut, hollow, the edges turned under: stem chesnut, darker below: flesh red brown.

Batsch. 69.

Gills decurrent, buff, numerous.
Pileus deep chesnut, hollow, but the edges waved and reflected, 3 inches diameter or more.
Stem hollow, the sides of the hollow porous; 2 inches high, ½ an inch diameter, dark chesnut, crooked.

At first sight it much resembles the Ag. dulcis, but the hollow stem, the want of milky juice and the brown flesh will readily distinguish them.

Batsch tells us that his plant had a whey-like juice, and when broken smelt like a bug.

Ag. cimicarius. Batsch. In the Park at Packington. Autumn.

Var. 2. Gills in fours, or eights, connected by short transverse white ligaments.

Edgbaston, in woods. Nov.

Var. 3. Gills in pairs: stem short, eccentric. Milk white, changing to a brimstone colour.

Gills in pairs, very little decurrent, fleshy, broad.
Pileus concave, reddish brown, marked obscurely with concentric circles. *Flesh white.*
Stem solid, short, thick, not central.

Milk white, mild, changing to a pale yellow when exposed to the air. Mr. Stackhouse.

Woods near Woolhope, Herefordshire.

AG. Gills buff, slightly decurrent: pileus deep buff, gently convex: stem yellow white, serpentine. flexuo'sus.

Bull. 308. is like it, except in the stem being straight and scurfy, and the gills loose.

GILLS a little decurrent, buff, very thick, few.
PILEUS deep buff, paler in the centre, 1½ inch over, the edge turned in.
STEM solid, yellow white, of equal thickness, serpentine, 2½ inches high, and full ¼ inch diameter.
Lord Aylesford's Park at Packington.

AG. (BATSCH.) Gills buff, numerous, 4 in a set: pileus mouse colour, concave, edges turned down: stem white, thick. livido-rubes'cens.

Bull. 282—*Batsch.* 202.

GILLS somewhat decurrent, buff colour, semi-transparent, thick set, 4 in a set, sprinkled over with a substance like brown sugar: probably the inspissated juice.
PILEUS mouse colour, dotted, concave, irregular at the edge, and more or less turned down and plaited. Three to 4 inches diameter.
Flesh white, changing to a reddish tinge by exposure to the air.
STEM solid, white, smooth, but not even, 2 inches long, more than ½ an inch diameter, gently tapering downwards.
Juice milky, somewhat acrid, but not peppery.
Ag. lactifluus plumbeus. Bull. *Ag. livido-rubescens.* Batsch. Edgbaston plantations. Aug. 1791.

AG. (BOLT.) Gills reddish buff, 4 in a set, branching: pileus cool brown, viscid, shining, sloping: stem whitish, shining, eccentric. a'cris.

Bolt. 60.

GILLS decurrent, more so on one side the stem than on the other, pale brown buff, with a reddish tinge, very thick set, the long ones often inosculating.
PILEUS cool brown, viscid, shining, irregular, concave, 2 to 3½ inches diameter, set sloping on the stem. *Flesh* white.

STEM solid, tapering downwards, flatted at the top, nearly white, shining, crooked, eccentric, 1 to 1½ inch long.

From the crooked stem and the sloping pileus it lies very close to the ground amongst the grass, and is much eaten by the large black snail. It abounds with white milky juice, very acrid to the taste. This species is nearly allied to var. 2. Ag. Listeri, and I have felt much inclined to connect it with that, but the differences are such that I think the investigation will be facilitated by the present disposition, and further observation may determine more exactly whether that should be arranged as a variety under this species, or where it now stands.

Ag. acris. Bolt.

claræfor'mis. AG. Gills pinky buff, very irregular: pileus brown buff, cracking: stem whitish.

Schæff. 307—*Bull.* 551. 1.

GILLS decurrent, pinky buff, very irregular, not very numerous, the ends of the long one frequently splitting; sometimes connected by cross ligaments.

PILEUS buffy brown, irregularly convex, turning up and becoming flat and sometimes concave with age, cracking, fleshy, 1 to 2 inches over.

STEM solid, whitish, thick as a goose-quill, 1 to 1½ inch high. *Flesh* pale buff.

In other specimens the pileus and stem run into one another, the latter being very thick upwards and gradually tapering downwards as in the Ag. obesus.

Ag. clavæformis. Schæff. *Ag. ericetosus.* Bull. Garden field, Edgbaston. 12th Oct. 1793.

fib'ula. AG. Gills buff: pileus orange or yellow brown, centre hollow: stem yellow.

Bull. 186.

GILLS decurrent, full buff colour.

PILEUS orange or yellow brown, centre depressed, edges turned in, scarcely ¼ inch diameter.

STEM solid, yellow, 1 to 1½ inch high, thick as a large pin.

Ag. fibula. Bull. In Packington Park, amongst moss.

(5) GILLS yellow.

testa'ceus. AG. (HUDS.) Gills brown yellow, 4 in a set: pileus deep yellow, bossed in the centre: stem yellow, scored, thickset downwards.

Fl. dan. 1192—*Schæff.* 65.

GILLS decurrent, deep brownish yellow, 4 in a set.
PILEUS bright full yellow, with deeper yellow streaks, centre bossed, edge turning up, 2 inches diameter. *Flesh* yellow.
STEM solid, yellow, silky, thickset downwards, 3-8ths of an inch diameter, 3 to 4 inches long, often crooked.

Gills of the same colour with the Pileus; somewhat running down the stem. Curtain none. (Ag. leoninus of Haller is a different species. Mr. WOODWARD.

This is undoubtedly the plant of Schæffer, which Mr. Hudson cites as his Ag. testaceus, but he also quotes as a synon. Haller 2431, which is a very different plant, as appears from the references and description of the latter author, who seems to have misled Mr. Hudson by quoting Schæffer's 65.

Ag. incurvus. Schæff. Plantations, Edgbaston. Sept.

AG. Gills pale yellow, mostly uniform, forked: pileus adus′tus.
yellow brown, edge greatly turned in: stem yellow
brown, with reddish stains.

Schæff. 72 *and* 71.

GILLS greatly decurrent, pale yellow when full grown, numerous, nearly of the same length, most of them dividing at some distance from the stem.
PILEUS yellowish brown, with stains of dark red towards the edge; gently convex, but the edge turned down and bent in so as to approach the stem; 3½ to 5 inches diameter; clammy when wet, satiny when dry. *Flesh* pale dirty yellow.
STEM solid, irregularly hollow with age, yellowish brown, with a few reddish stains; near 2 inches long, and more than 1 in diameter, rather eccentric.

This is a very different plant from the Ag. elephantinus of Bolton, with which it has been confounded, perhaps because the pileus in both becomes overspread with dark stains, giving the appearance of their having been parched or burnt.

Ag. lateralis. Schæff. Edgbaston Park, under oak trees.
4th Aug. 1791.

*AG. (SCHÆFF.) Gills pale golden yellow: pileus fun- tubæfor′-
nel-shaped, golden yellow: stem very long, mis.
crooked.

Schæff. 248. *and* 249.

Gills decurrent, pale golden yellow. *Pileus* hollow like a funnel, varying in shape, golden yellow, 1½ inch over. *Stem* solid, woody, cylindrical, long, crooked, scaly, scored and pitted, golden yellow, 6 inches long, 3-8ths diameter. SCHÆFF.

Ag. tubæformis. Schæff. Trunks of old trees. June. DICKSON. fasc. 1. 15.

contig'uus. AG. (BULL.) Gills yellow, very numerous, mostly branched, and inosculating where they join the stem: pileus cinnamon, nearly flat, edge woolly, greatly turned in: stem, brown, streaked.

Sowerby 56—*Batsch.* 61—*Bull.* 240.

GILLS a little decurrent, yellow, changing to a watery brown, very numerous, most of them branched, and where they join the stem, reticulated.

PILEUS cinnamon colour, nearly flat, but a small rising in the centre; the edge very much rolled and cloathed with a considerable quantity of pale brown woolly substance; diameter 4 or 5 inches. *Flesh* yellowish white, changing when cut, to a reddish brown.

STEM solid, pale brown, with dark bloody streaks, nearly cylindrical, 2½ inches high, ½ an inch diameter.

The flesh of the stem changes like that of the pileus, when exposed to the air. Our plant exactly agrees with the excellent plate of Mr. Bulliard, except that our stems are longer and less uniformly coloured.

Ag. contiguus. BULL. *Ag. involutus.* BATSCH. Fir plantations at Barr, Staffordshire. 12th Sept. 1791.

Pine Groves, Norfolk. Mr. WOODWARD.

*Var. 2. Gills pale brown, numerous, 4 in a set: pileus red brown, convex, edge rolled in, a velvety belt above it: stem crooked.

Bolt. 55.

I think this must belong to this place notwithstanding the gills are said to be pale brown.

Ag. adscendens. Bolt. In the Burks, and other woods about Halifax. Sept. Oct. Mr. BOLTON.

neca'tor. AG. (BULL.) Gills pale yellow, mostly in pairs; pileus buff, flattish, centre hollow and deeper coloured;

edge rolled in, woolly: stem inversely conical: milky juice extremely burning and acrid.

Bull. 529.

GILLS decurrent, pale yellow, mostly in pairs; the long ones frequently forked.

PILEUS buff, flat, but concave and deeper coloured in the centre, edge turned down, rolled inwards towards the stem, and densely covered with a large quantity of cottony or woolly substance, so as nearly to obscure the gills, some of these curled fibres when stretched out being near 1-3d of an inch long. *Flesh* pithy, white.

STEM solid, pale buff, inversely conical, eccentric, crooked, 1½ inch long, full ¼ of an inch diameter in the middle, with age becoming irregularly hollow.

Mr. STACKHOUSE, who sent me this specimen, says, "the "whole of the exterior of this plant, which was of a dirty yel"lowish hue, appeared composed of woolly fibres filled with a "glutinous dew."

Ag. necator. Bull. Near Woolhope, Herefordshire.

11th Aug. 1791.

Var. 2. Gills much branched and inosculating; pileus brown buff: stem very short and thick.

GILLS decurrent, numerous, pale yellow, short for the size of the plant, the edge of the pileus turning in so as greatly to lessen the usual distance between it and the stem. These gills are more irregular than those of any other Agaric I have examined, for they are much branched at both ends, and these branches inosculate with one another so as to form a net work, not only upon the stem, but also under the edge of the pileus.

PILEUS brown, or reddish buff, clammy or satiny, nearly flat, but the edge at all times much turned in, and woolly, diameter 3 to 4 inches. *Flesh* yellowish.

STEM solid, buff in the middle, brown below, yellow at the top, nearly cylindrical, 1½ inch long, 1 inch diameter: somewhat eccentric.

The general habit of this plant induces me to place it here, but the want of milky juice would rank it as a variety of the *Ag. contiguus;* knowing however that those plants most abounding with milk are sometimes without it, as I have particularly found in the *Ag. xerampelinus*, I think it very possible that a more favourable concurrence of circumstances may teach us that it is really a milky species.

Under large Spanish chesnut trees, in the Park at Edgbaston.

6th Aug. 1791.

ful'vus. AG. (Bolt.) Gills pale yellow, not numerous, 4 in a set: pileus red buff, conical, changing to convex and bossed, the edge at length turning up: stem whitish, cylindrical.

Bull. 56—*Schæff.* 50 *and* 54—*Sowerby* 143.

GILLS pale yellow, decurrent, not numerous, 4 in a set, but the small teeth often excluded, and the larger ones branching and inosculating near the edge of the pileus.

PILEUS red buff, most red in the centre, paler with age, at first bluntly conical, the edge turned in, then nearly flat, but bossed in the centre, at length the edge turns up and tears. *Flesh* white, thin, semi-transparent.

STEM solid, cylindrical, but taper and bent towards the root, white or very pale buff, or very dilute yellow, 1½ to 3 inches high, ¼ to ½ an inch diameter.

Ag. pallidus & ochroleucus. SCHÆFF. *Ag. fulvus.* BOLT. On the long bank by the long stew, Edgbaston Park. Oct.

(6) GILLS purple.

amethys'tinus. AG. (HUDS.) Gills purple, 2, 3, or 4 in a set: pileus purple, convex: stem pale purple, cylindrical.

Sowerby 187—*Bull.* 198 *and* 570—(*but Schæff.* 13, *which he quotes, is a different plant.*)

GILLS but slightly decurrent, beautiful violet purple, not numerous, 2 in a set in the smaller, 3 and 4 in the larger plants.

PILEUS purple, smooth, convex, with age the middle a little hollowed, 1 to 2 inches diameter.

STEM solid, irregularly hollow when old, pale purple, cylindrical, smooth, 2 to 3 inches long, thick as a raven or goose quill.

Stem often crooked. Pileus sometimes bossed. Differs essentially from the *A. violaceus* in habit as well as colour. Mr. STACKHOUSE. Our plant perfectly agrees with Mr. Hudson's character, and also with the more explicit description by Vaillant, p. 67.

Ag. amethysteus. BULL. Woods near Bath. Mr. STACKHOUSE. Plantations, Edgbaston. July—Oct.

ru'tilus. *AG. (SCHÆFF.) Gills reddish purple, leathery, few, in pairs : pileus reddish purple, fleshy : stem reddish purple, cylindrical.

Sowerby 105—*Schæff.* 55.

Gills decurrent, moderately numerous, leathery, thick, reddish purple, turning of a blue mouldy colour in decay.

Pileus flat, fleshy, thick, smooth, centre somewhat depressed, edge turned down, not changing colour as Schæffer mentions.

Stem solid, reddish purple, cylindrical, insensibly swelling at the top into the pileus, tough, 2 inches high or more, 3-8ths diameter. Major Velley and Mr. Stackhouse.

Ag. rutilus. Schæff. Woods near Bath under fir trees at Pendarvis, Cornwall ; often distorted when fully grown, and wrinkled into grotesque shapes. Mr. Stackhouse. Abounds on Claverton Downs, and from its leathery texture continues much longer undecayed than any other species. Major Velley.

* Ag. (Linn.) Gills purple, 4 in a set : pileus rich brown, convex : stem paler brown, cylindrical. vis'cidus.

Ag. stipitatus, pileo purpurascente fusco viscido : Lamellis fusco purpurascentibus. Linn.

Gills somewhat decurrent, distinct, remote, purple to brown, the short ones tapering to a point, sides woolly, powdery. *Pileus* convex, hemispherical, and the edge turned in when old, at length turban shaped and viscid. *Stem* cylindrical, brown yellow, especially in its horizontal section. *Fl. suec.*

Gills decurrent, not numerous.

Pileus convex, edge thin, rather turned down, about 2 inches over.

Stem solid, cylindrical, paler brown than the pileus, 1 ½ inch high, thick as a goose-quill. Taken from a beautiful drawing and dissection sent me by Mr. Stackhouse.

Plantations near Bath. Mr. Stackhouse.

II. SOLID and FIXED.

(1) Gills white.

Ag. Gills white, very numerous, irregular, 4 in a set : pileus white : stem white, tapering. grave'olens.

Bull. 585.

GILLS fixed by a small claw, white, very numerous, irregular, mostly 4 in a set.

PILEUS dead white, convex, yellowish in the centre, 3 to 4 inches over. *Flesh* thick, white, spongy.

STEM solid, white, fibrous, splitting, crooked, compressed, tapering downwards, 2 inches high, near 1 inch diameter, spongy and white within : sometimes rather bulbous at the base.

The want of a Wrapper and Curtain distinguishes this from the Ag. *bulbosus*. The Gills are disposed to separate from the pileus as the tubes of some of the Boleti do. It is very strong and unpleasant in its smell, so that it is not an agreeable task to go through the examination of it. *Ag. grammopode.* BULL.

Red Rock plantation, Edgbaston. In rings under trees in the garden at Packington. 20th May, 1792.

fimbria'tus.* AG. (BOLT.) Gills watery white, 4 in a set, nearly gelatinous : pileus watery white, funnel-shaped, curled at the edge: stem dusky watery white. See Ag. *infundibuliformis.*

depres'sus. AG. Gills white, 4 in a set: pileus pinky or brownish white, centre much depressed, edge turned down: stem pinky white : juice milky.

Bull. 573 *nearly resembles it.*

GILLS fixed to the top of the stem, but not extending down it ; white, yellowish with age, numerous, 4 in a set.

PILEUS pinky or brownish white, much hollowed in the centre, but the edge generally turned down ; glutinous, 4 or 5 inches diameter. *Flesh* spongy, white, or pinky.

STEM solid, white, with a pinky tinge ; 3 to 4 inches high, ½ inch diameter, thickest downwards.

Juice dilutely milky, that of the Gills more milky than that of the other parts ; very acrid.

Edgbaston Park. 14th Oct. 1790.

marit'imus. AG. Gills pinky white, 2 or 4 in a set, pileus pinky white, convex : stem white, pellucid.

GILLS fixed, white, with or without a faint rosy tinge ; not crowded, 2 or 4 in a set.

PILEUS convex, spongy, white with a very slight rosy tinge, near ½ inch diameter.

STEM solid, white, semi-transparent, with a whiter opake central pith; rather more than an inch long, thick as a swallow's quill.

In considerable quantities, but not in clusters, amongst the grass called the Den, on the sea shore at Teignmouth.
7th Oct. 1792.

AG. Gills watery white, claws pure white: pileus cream colour: stem whitish: ring permanent. æsti'vus.

GILLS slightly fixed to the stem, watery white, changing to reddish brown when dry, numerous, 4 or 8 in a set, but the claws by which the long Gills are fixed to the stem pure white, not turning brown when dry.
PILEUS cream-coloured, deepest in the centre, gently convex, edge turned down, 2 inches over, the skin cracking with age. *Flesh* white.
STEM solid, brownish, flesh white, whitest and pith-like in the centre, 2 inches high, thick as a swan's quill, thickest upwards.

Curtain white, when torn turned down on the stem; permanent.

Edgbaston, on turf lately mown. 16th June, 1792.

AG. (SCHÆFF.) Gills white, fleshy, irregular, connected by transverse ligaments: pileus livid, watery white, bossed, tearing at the edge; stem white, crooked. la'cer.

Schæff. 257.

GILLS fixed, pure white, fleshy, not numerous, 2, 3, or 4 in a set, but mostly 4, the long ones sometimes forked; they are connected by white threads to the pileus and to each other.
PILEUS livid, watery white, edge first turned in towards the stem, then turning up, irregular, cracking and tearing, centre bossed, surface scored, 1 to 2 inches over. *Flesh* white.
STEM solid, white, crooked, nearly cylindrical, often compressed, rarely quite central, 2 inches high, full $\frac{1}{4}$ inch diameter.

This has very much the habit of the Ag. aurantius, but the solid stem, and the want of slimy surface distinguish it. The drawings of Schæffer 257, are very characteristic, but the colouring not very exact.

Ag. lacer. Schæff. Edgbaston, after much gentle rain, by the long stew. 12th Oct. 1791.

opa'cus. Ag. Gills white, numerous, 2 or 4 in a set: pileus dead white, nearly flat: stem white, pith brown.

Sowerby 142.

Gills fixed, white, very thick set, and very fine, in pairs or in fours.

Pileus white, opake, smooth, nearly flat when expanded, but a little turned down at the edge, and a very small protuberance in the centre, cracking when old, and the skin readily peeling off, diameter 1 ½ to 2 inches.

Stem solid, white, cylindrical, 2 inches high, ¼ inch diameter, filled with a watery, and, when old, with a brownish pith.

Edgbaston Park. 14th April 1792.—9th Sept. 1791.

furfuro'sus. Ag. Gills watery white, 2 or 4 in a set, but irregular: pileus yellow brown, scaly; stem yellow brown, crooked, scored.

Gills fixed, watery white, turning to a brownish cast with age, not numerous, 2 or 4 in a set, but very irregular.

Pileus yellow brown, scaly, conical when young, turning up and cracking at the edge with age; very uneven, not fleshy, ½ to ¾ inch over.

Stem solid, yellowish brown, splitting, crooked, scored or rather fluted with longitudinal furrows, thick as a raven's quill, ¾ to 1 inch high. *Root* a roundish knob.

From the turning up of the pileus and the groves on the stem, the gills get rather a decurrent appearance.

Filbert hedge, Edgbaston gardens. 18th June, 1792.

cras'sipes Ag. Gills white, brownish at the edges, fleshy, distant, 4 in a set: pileus reddish brown, bossed, cracking: stem greatly tapering downwards, ribbed.

Sowerby 129—*Schæff.* 88. 1—*Bull.* 106, *and* 516, 2, *but the boss not sufficiently marked, particularly in the latter plate*—*Schæff.* 87. *f.* 1. 2. 3, *only; the lower figures being a different plant.*

GILLS white, thinner and rusty brown at the edges; in the larger specimens near an inch broad.

PILEUS, surface very uneven with large hollows and large protuberances; ground dirty white tinged and blotched with reddish brown, deeper at the central boss, sometimes set very sloping on the stem so as to be nearly parallel with it; diameter 4 to 6 inches. *Flesh* spongy.

STEM blotched, compressed, $\frac{3}{4}$ inch diameter at the top, deeply ribbed or furrowed, and tapering downwards to a point; 4 to 5 inches high.

Ag. crassipes. Schæff. *Ag. fucipes.* Bull. Growing in a large cluster, apparently from one root, at the foot of an oak tree, in contact with the wood, near the gate of the red rock plantation, Edgbaston. 25th Aug. 1792.

Foot of trees, Woolhope, Herefordshire. Mr. STACKHOUSE. At the base of decaying trees, frequent. Mr. WOODWARD.

AG. (LINN.) Gills white, short ones solitary: pileus brownish or reddish, convex: stem scaly: ring broad, turned down. musca'rius.

Pileus large, rather flat, generally red, sprinkled with downy angular warts. *Gills* flat, inversely spear-shaped, mostly entire, the few shorter ones very blunt, and without other smaller ones on each side them, which is peculiar to this species. *Stem* cylindrical, a cavity within it, * base bulbous, warty, top expanded. *Ring* on the middle of the stem, loose, pendent.

Varies with the pileus, *white* or *red*, or *crimson*, and *warty*.†

GILLS fixed, white, yellowish with age, numerous, mostly uniform, but a shorter one sometimes intervening. These shorter gills vary very much in length, but are rarely less than 1-3d the length of the long ones.

PILEUS varying much in colour, very fleshy, convex, turning up with age, 2 to 7 inches over. *Flesh* white, reddish in decay. *Warts* raised, compact and angular; or thin, flat, and ragged.

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* Only hollow, when old.

† Mixed with milk it kills flies. The expressed juice rubbed on walls and bedsteads expels bugs. LINN. (Poisonous, cathartic, sudorific. Serviceable in epilepsy and palsy, occasioned by repelled cuticular diseases. Dose gr. x. to gr. xxx. with vinegar. Externally the powder sprinkled on bad ulcers and gangrenes. Should be gathered in Autumn, dried carefully, powdered, and preserved in a vessel closely shut. SWEDIAUR.)

STEM solid, the internal substance shrivelling with age, leaves irregular hollows; scaly, bulbous at the base, 3 to 5 inches high, ¾ to 1 ½ diameter.

Ring broad, permanent, turned down upon the stem.

Ag. stipitatus, lamellis dimidiatis solitariis; stipite volvato, apice dilatato, basi ovato. *Fl. suec.* 1235.

This plant rises out of the ground inclosed within its brown studded wrapper. (*Volva* of some authors, but not of LINN.) A section made vertically shews all the parts in their original position, and also the curtain (the real *Volva* of LINN.) which remains long after, forming when torn by the expansion of the pileus, the broad ring upon the stem described above. The warts upon the pileus are fragments of the wrapper, a fact which I was for a time indisposed to credit, because they often adhere so strongly to the pileus as not to separate without tearing up its skin. Mr. Stackhouse justly observes that the warts being undoubtedly the remains of the wrapper, the same species may be sometimes smooth and sometimes warty, and that this circumstance cannot constitute even permanent varieties.

Var. 2. Pileus white, warts yellowish: stem white.

In this variety a short gill, or a gill of a third series, sometimes appears. Pileus but 2 inches diameter; stem 2 inches high.

Edgbaston. 16th Sept. 1791.

Var. 3. Pileus blood red, without warts.

Bolt. 27—*Schæff.* 28.

Stem brownish white.

Ag. muscarii var. Schæff. Dry woods about Halifax, Yorkshire. Mr. BOLTON.

Var. 4. Pileus blood red, with white warts.

Bull. 122—*Schæff.* 27—*Fl. dan.* 1129—*Clus.* ii. 280—*Ger. em.* 1581. 3—*J. B.* iii. 841. 2—*Park.* 1321. 8—*Sterb.* 22. *A.*

Stem white.

Ag. muscarius. Schæff. *Ag. Pseudo aurantiacus.* Bull. [Plantation, on the south bank of the upper pool, at Hatton, near Shiffnal, Shropshire. Under birch trees at Edgbaston.] (Found likewise under birch trees in Scotland by Mr. G. WATT. E.) June—Sept.

* Var. 5. Pileus pale red, with reddish warts.

Bull. 316—*Schæff.* 261.—*Bolt.* 139.

Mr. Bulliard says the gills are loose, but Mr. Bolton observes that they adhere by a small claw to the top of the stem. The latter says it has no wrapper, but the former observes that it has an imperfect one which disappears in the progress of the growth of the plant; and this also is the opinion of Schæffer. *Stem* white above, pinky below.

Ag. myodes. Schæff. *Ag. verrucosus.* Bull. *Ag. myodes,* Bolt.—In a dry gravelly soil near Leebridge.

12th June, 1790. Mr. BOLTON.

* Var. 6. Pileus pinky brown, with whitish, flat, thin, ragged warts.

Schæff. 90. *f.* 1. 3—*But the drawing of the gills does not agree with the description.*

Warts irregular in shape, in clusters, light brownish colour and wrinkled, adhering slightly to the pileus, and may be rubbed off. Mr. STACKHOUSE.

Ag. maculatus. Schæff.

* Var. 7. Pileus pinky brown, satiny, with small, angular, hard, greyish warts: stem brownish white.

Curt. 312—*Schæff.* 90. 2, 4, *and* 91; *(but the drawing of the gills does not accord with our plant, nor with the author's own description.)* *Mich.* 78. 1.

Stem pinky brown, or brownish white. *Ring* reddish buff. *Flesh* white, getting a pinky tinge after being some time exposed to the air.

The 6th and 7th varieties constitute the *verrucosus* of Mr. Hudson, who refers also to Haller 2397, which is a different plant, the same as Bauh. hist. iii. 826. Sterb. 20. K. and Ray Syn. 731.

Ag. verrucosus. Huds. Ray *Syn.* p. 3. *n.* 12. *Ag. maculatus* and *pustulatus.* Schæff. Edgbaston Park, where grass had been mown. May. Aug.—Nov.

* Var. 8. Pileus dirty yellow, with dull red clouds.

Curt. 312.

Pileus smooth, glutinous. *Warts* light coloured, thin, crumpled. *Stem* slightly tinged with red. *Ring* beautiful, standing aloof from the stem in a wavy line, and finely striated.

Pendarvis, Cornwall. 28th July, 1790.

Var. 9. Pileus olive brown: warts black.

Pileus in colour not unlike the bark of a young ash tree. *Warts* irregular, large, blackish. Mr. STACKHOUSE.
Pasture land, Woolhope, Herefordshire.

Var. 10. Pileus olive brown, without warts: gills 4 in a set.

This turns up with age, not in the usual mode at the edge, but the whole pileus doubled together.
Fir Plantations, Barr, Staffordshire. Sept.
I have been the more particular in the display of this species and its different varieties, on account of the great confusion caused by the latter, the various times it has been figured under different names, and the authority of Mr. Hudson, who has made two species out of one, and has inadvertently quoted as a synonym still another, and really a different plant.

ter'reus. AG. (SCHÆFF.) Gills white, numerous, 8 in a set: pileus brown, shaded, convex, irregular, cracking; stem white, conical, eccentric.

Sowerby 76—*Schæff.* 64. 1. 2. 3.

GILLS fixed, watery white, numerous, 8 in a set, the smallest gills varying much in length.

PILEUS light watery brown, with various shades, scored, convex, rather bossed, edge turned down, and the sides with 1 or 2 large irregular depressions, cracking with age, 2½ to 4 inches diameter. *Flesh* white, spongy.

STEM solid, white, smooth, rather crooked, tapering to the root, rarely central, 2½ inches long, ½ inch diameter. Ray Syn. 5. 21, which Mr. Curtis would not have assigned to the *Ag. ovatus*, had he sufficiently considered the description of Ray.

Ag. terreus. SCHÆFF. In clusters, Edgbaston, under the large oak by the bolt of the square stew. 4th Sept. 1791.

Var. 2. Gills white, 4 in a set, wide apart: stem tapering upwards

Sowerby 207—*Schæff.* 64. 4—*Fl. dan.* 832, 3, *seems to be the same plant, of a dwarfish growth, and a rough pileus.*

GILLS fixed, very white, fleshy, broad, wide asunder, 4 in a set.

PILEUS reddish mouse, satiny, convex but uneven, 3 inches diameter, oblique.
STEM solid, very white, crooked, tapering upwards, many united together at the base, 2 inches long, ½ inch diameter.

Coplar Wood, Herefordshire. Sept. 1791.
Specimen, description, and a drawing from Mr. STACKHOUSE.

Var. 3. Gills 8 in a set; pileus scaly: stem thinnest in the middle: root bulbous.

Ag. terreus. Schæff. *Ag. scaber.* Fl. dan. In the garden at Edgbaston. 18th June, 1792.

* Var. 4. Pileus livid, conical, bossed: gills dirty white: stem crooked.

Schæff. 14.

Stem irregularly hollow when old, and often so much curved that the pileus is bent down to the ground. *Pileus* very variable, somewhat hairy, paler when old, and the border frequently split. Mr. WOODWARD. The death-like paleness of the gills distinguishes this plant. The hue of the pileus variable, but most frequently of a dove-colour. Schæffer's t. 14, the gills ill-coloured. This Agaric frequently comes up in waved lines of a considerable extent, or in great circles, 10 or 15 yards in diameter. Major VELLEY.

Ag. lividus. Huds. 616. Relh. 937. *Ag. multiformis.* Schæff. Woods and hedges. [Pine grove, Kirby. Mr. WOODWARD.] Oct.—April.

* Var. 5. Gills extremely white: pileus mouse-colour, shaded with brown: stem cylindrical, thick, dirty white, straight.

Gills not reaching the stem, but leaving a channel round it. *Pileus* flat, 2½ inches over. *Stem* 2½ inches high, ½ inch diameter, splitting. Drawing and description from Mr. STACKHOUSE.

Grows in long extended lines; in woods near Bath. Mr. STACKHOUSE.

Var. 6. Gills pinky white, mostly 8 in a set: pileus semitransparent.

Edgbaston lanes. May.

AG. (BULL.) Gills white, 4 in a set: pileus convex, centre mouse, border white or pinky: stem white, cylindrical, crooked, brittle. leucocephalus.

Bull. 536.—*Bull.* 428. 1. *more bossed than our specimens.*

GILLS fixed, white, brittle, 4 in a set.

PILEUS convex, silky, centre dilute mouse, lightly shaded off, border white, when young sometimes tinged with pink, cracking with age, 1½ to 4 inches diameter.

STEM solid, white, cylindrical, but often compressed, crooked, silky, 1 to 2 inches high, ¼ to ½ inch diameter. Central when young, not always so in a more advanced age.

Ag. leucocephalus. Bull. Grows in clusters; pasture land, Edgbaston, particularly by the long stew. 27th Oct. 1790.

plumo'sus. * AG. (BOLT.) Gills white, 4 in a set: pileus convex, mouse-coloured, tufted: stem mouse-colour, tufted, cylindrical, crooked.

Bolt. 33.

GILLS fixed, white, broad, numerous, dry and light.

PILEUS thickly covered like the stem with mouse-coloured downy matter, thin, light, dry, flexible, 1½ inch over.

STEM solid, hard, thick as a duck's quill, 4 inches high. *Curtain* white, evanescent. BOLTON.

Ag. plumosus. Bolt. In a steep wood near Halifax. Aug.

gra'cilis. AG. Gills pure white, strong, not crowded, 8 in a set: pileus pure light brown, flat, thin, bossed: stem tall, slender brownish.

GILLS fixed, very white, rather distant, fleshy, regularly disposed, 8 in a set.

PILEUS cool brown, shining with moisture but not viscid, thin, nearly flat, but a gentle rising in the centre and radiated round the boss, diameter 3 to 4 inches.

STEM solid, smooth, satiny, white at the top and bottom, pale mouse in the middle, 8 inches high, ¼ inch diameter, gently tapering upwards, splitting. *Flesh* brown, white in the centre.

Var. 1. Gills very much branched: stem entirely white.

Edgbaston, red rock plantation. Aug. Sept. 1791.

elas'ticus. AG. Gills white, 4 in a set: pileus chesnut, semi-globular: stem buffy white, tapering.

Schæff. 87. 4. 5—*(stem too red and too much ribbed.) Bull.* 516. 2, *resembles it, but this plate is so far unfinished that I cannot quite decide until the text be published. The author calls it* fusipes, *which he figured before in* *plate 106, but if it be only a variety of that, his own observations at the foot of the plate must prove unfounded. The smaller figures give a pretty exact idea of our plant, but the stems have too much colour.*

GILLS fixed, whitish, 4 in a set.

PILEUS chesnut colour, semi-globular, uniform, clothy. *Flesh* white, moderately thick.

STEM solid, buff, with a few small red brown blotches, smooth, 1½ to 2 inches high, ½ inch diameter, tapering upwards from ½ inch above the ground, and from the same part rapidly tapering downwards so as to end in a slender root; sometimes rather ribbed.

This Agaric is very tough and strong, with a considerable share of elasticity. Mr. Stackhouse observes that the edge of the pileus coops in like the button of a common mushroom, that the gills are numerous, stiff, and white, that it is often found not in clusters, and that in many instances it approaches the Ag. *crassipes.* To this opinion I perfectly agree, and further remark, that the tendency to a ribbed stem in some of the specimens still increases the affinity; but until the *Ag. crassipes* shall be better known, especially in its younger and smaller forms, I think the difficulties will sooner be cleared up by keeping them apart. The want of a boss on the pileus, the absence of cracks in its skin, the want of strongly marked ribs on the stem, and more than all, the tough elastic substance of the plant, prevent me at present from arranging it as a variety of the *crassipes.*

Not Ag. elasticus. BOLT.

Ag. crassipes. Schæff. Under oak trees in Edgbaston Park. 21st Aug. 1791.

Var. 2. Gills brown white, shallow, 4 in a set: pileus brown, convex, satiny, stem white.

GILLS fixed very strongly to the stem, brownish white, very narrow, 4 in a set, the smaller series often laid under the edge of the pileus, which turns inwards over them.

PILEUS brown, satiny, shining, convex, 2½ inches over. *Flesh* very thick, white.

STEM solid, white, satiny, cylindrical, rarely straight, 2 inches high, ½ an inch diameter.

I have not been able to find either a curtain or a ring.

The whole substance very strong and elastic. It grows single or in clusters.

Under the large oak by the bolt of the square stew, Edgbaston Park. 18th Sept.

Var. 3. Pileus rather conical, brown chesnut, very viscid: stem whitish, cylindrical: curtain white, fugacious.

GILLS fixed, white, 4 in a set.

PILEUS edge turned in, 2 inches over, entirely covered with a viscid matter, which drying preserves its brightness like varnish. *Flesh* white.

STEM cylindrical, above where the curtain was attached white and scurfy, below stained with the colour and the varnish of the pileus; 2 to 2½ inches high, ¼ of an inch or more in diameter.

Partakes the toughness and elasticity of the other varieties, which seems owing to its outer coat, which is both tough and elastic, readily stripping from the flesh which is rather tender and brittle.

In clusters, on the roots of fallen firs, in dry plantations at Edgbaston. Oct.

obsoles'-cens. AG. Gills white, 4 in a set; pileus dull pink, convex: stem pinky brown, cylindrical.

Batsch. 102.

GILLS slightly fixed, whitish, large ones about 36.

PILEUS dull brown pink, convex, but flatted and somewhat depressed when old, 1 to 1½ inch over.

STEM solid, but pithy; pinky brown, cylindrical, 1 to 1½ inch high, thick as a goose quill.

Ag. obsolescens. Batsch. In the Park at Packington, Warwickshire.

stip'itis. AG. Gills brown white, 4 in a set: pileus cool brown, darker and woolly in the centre: stem pale brown with a buffy tinge, thicker and bulbous at the base: ring white, permanent.

Sowerby 101—*Bolt.* 136—*Mich.* 81. 2.

GILLS fixed, quite white, narrow, thin, pliable.

PILEUS at first bluntly conical, then nearly flat, almost white at the edge, cracking very much through the whole substance, but not turning up, 2 to 4 inches over.

STEM cool brown, 3 to 4 inches high, ½ an inch diameter. *Curtain* thick, tough, cottony, white.

Ag. fusco-pallidus. Bolt. Edgbaston Grove, where large trees had been fallen four or five years before. 2d Oct. 1791.

Var. 2. Gills brown white, 4 in a set; pileus rich brown:

stem pinky or brownish white, tapering at the base: ring yellowish.

Fl. dan. 1013—*Schæff.* 74.

GILLS strong, white, changing to buffy brown.

PILEUS at first bluntly conical, dark reddish brown and woolly at the apex, the edge olive brown; afterwards a more uniform rich brown.

STEM cylindrical, rarely straight, tapering greatly downwards at the root.

Ag. melleus. Fl. dan. In similar situations with the preceding. Oct.

Var. 3. Gills white, fleshy, 8 in a set: pileus dark brown and olive: stem nearly white, cylindrical: curtain and ring yellow.

PILEUS dark and woolly in the centre, border rich yellow olive, 1 to 1½ inch diameter, cracking and turning up when old.

STEM white, with a pinky or brownish tinge, cylindrical throughout, 2 to 3 inches high. *Curtain* cottony, pale yellow. *Ring* deeper yellow. A much smaller plant than the preceding varieties.

On a hedge bank in the Edgbaston old road. 25th Sept.

Var. 4. Gills white, 4 or 8 in a set: pileus convex, different shades of brown: stem nearly cylindrical, brownish, curtain woolly: ring broad, turned down on the stem, permanent.

GILLS fixed, white, 4 or 8 in a set.

PILEUS various shades of yellow, red, or olive, to cool pale brown, darker in the centre, convex, slightly bossed, edge turned down, cracking when fully expanded, 1½ to 4 inches over. *Flesh* white.

STEM solid, spongy, smooth, from rich red brown to nearly white, cylindrical, seldom straight, silky, shining, 2 to 7 inches high, ½ an inch diameter.

Ring permanent, formed by the curtain, which is thick, tough, and woolly, turning down upon the stem. The curtain in the young state of the plant extends up the stem quite to the gills, and then stretches downwards to the edge of the pileus, forming striæ or rising scores upon the top of the stem, to which the gills are not connected, but which on a careless examination gives them an appearance of a decurrency, not really existing.

Ag. obscurus. Schæff. Grows in large clusters in the hollows left by the felling of trees. Sept. Oct.

Var. 5. Gills dusky white, fleshy, tough, distant, 4 in a set; pileus convex, rust-coloured: stem rust-coloured, tapering upwards: ring white, tough, permanent.

Bolt. 16.

Gills adhering to the stem by a narrow claw.

Pileus 1 inch diameter, feeling like harsh woollen cloth. *Flesh* white.

Stem solid, firm, elastic.

The whole plant of a tough leathery substance, and in decay dries and withers.

Ag. elasticus. Bolt. Fixby Park, under oak trees.
Oct. 1786. Bolton.

Var. 6. Pileus smooth, rich red chesnut: stem cylindrical, silky, pinky.

Gills white, numerous, fleshy, very narrow where fixed to the stem.

Pileus convex, 2 inches over.

Stem solid, $2\frac{1}{2}$ inches high. Flesh pinky, rather crooked, near $\frac{1}{2}$ an inch diameter. *Curtain* leaving a permanent ring on the stem.

The pileus not woolly in the centre, but patched with remnants of a shrivelled wrapper, hence it is probable that the woolliness mentioned in the preceding varieties is owing to remnants from the same origin.

Under chesnut trees, Edgbaston Park. Oct.

lari'cinus. Ag. Gills white, in pairs: pileus fox colour, convex: stem brownish: ring white, permanent.

Bolt. 19.—*Battar.* 11. F.

Gills fixed, few, narrow, brittle, in pairs.

Pileus fox colour, slightly convex, edge turned in, 1 to $1\frac{1}{2}$ inch over.

Stem solid, pale brown, near 2 inches high, $\frac{3}{4}$ of an inch diameter at top, tapering downwards; several clustered together and united near the root.

Curtain narrow, dead white, soft, cottony. Substance dry, light, spongy, compressible, elastic.

Takes root under the bark of decaying larch trees. In a small plantation at Lee Bridge, near Halifax. [Packington Park.] Autumn.

cyathoi'des. *Ag. (Bolt.) Gills white, 4 in a set, changing to brownish white: pileus umber brown, flat, but soon turning up: stem grey white, with whiter reticulated veins.

Bolt. 145; *(but none of the references.)*

Gills fixed.

PILEUS thin, smooth, silky, 2 or 3 inches over, soon turning completely up so as to form a funnel-like cup, which sometimes contracts partially so as almost to form distinct cups.

STEM solid, consisting of a strong rind, filled with a white spongy pith. Surface dusky white, marked with longitudinal reticulations of a whiter colour. BOLTON.

Ag. cyathoides. Bolt. Grew under an old melon frame. Feb.

AG. (BULL.) Gills buffy white, 4 in a set, but irregular and variously branched: pileus pale brown, with darker circles, gently convex, edge turned in: stem nearly cylindrical, buffy white. zona'rius.

Schæff. 235, *(very exact to our specimens.)—Bull.* 104. *the plant, but paler than ours.—Sowerby,* 203.

GILLS fixed, white, with a very pale buffy tinge, numerous, 4 in a set when regular, but the long ones often splitting, and then the smaller ones are excluded.

PILEUS pale brown, with concentric circles of a reddish brown, smooth, flattish at the top or rather a little depressed, sides bent down and a little turned in, 1½ to 3 inches over. *Flesh* white, thin.

STEM solid, white, with a slight buffy or pinky tinge, cylindrical, or a little tapering downwards, rarely quite straight, or quite central, 1½ inch high, ½ an inch diameter.

Milk in the gills and cortical part of the pileus abundant, white, very acrid.

Ag. fuscus. Schæff. *Ag. lactifluus zonarius.* Bull. Dam of the great pool in Edgbaston Park, plentifully, but I have not found it elsewhere. 4th Aug.

Var. 2. Pileus pale grey brown, white at the edge.

Farther plantations, Edgbaston. Sept.

AG. (LINN.) Gills white, mostly uniform: pileus of various tints: stem white. in'teger.

Sowerby, 201.

GILLS fixed, white, mostly uniform, fleshy, moderately thick set, yellowish with age.

PILEUS crimson, pink, lilac, or tawny brown, changing to dirty yellow, or to lead colour; often glutinous, regularly convex, often scored at the edge, which turns up when old; from 1 to 4 inches over. *Flesh* white.

STEM solid, white, cylindrical, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches high, $\frac{1}{2}$ to $\frac{3}{4}$ of an inch diameter.

Ag. stipitatus, lamellis omnibus magnitudine æqualibus. *Fl. Suec.* 1230. Ray. *Syn.* p. 4. *n.* 16.

This is a very common Agaric, and one of the most beautiful of the tribe, but its evanescent and varying tints, as well as the great differences in its size, are apt to puzzle the younger botanists. The skin of the pileus is very ready to strip off. Snails are very fond of this species.

Var. 2. Gills uniform, connected by cross threads; pileus pink to lilac.

Bolt. 1—*Schæff.* 58—75—92, *are all representations of this plant, in general pretty well done.**—*Battar.* 15. *C. E. Fl. dan.* 1009. 1, *a young plant.*—*Batsch.* 13—*Sterb.* 22. *F.* .

Pileus plano-convexus, vix carnosus, pallidus aut sanguineus, margine supra sulcato punctisque striato, a lamellis versus marginem interiorem capituli ab initio denticulato connexis. *Lamellæ* pallidæ et notanter omnes integræ s. equales. Stipes magnus, albus. Fl. Suec. 1230. *β*. Ray. *Syn.* 3. *n.* 7. and *n.* 9.

Ag. russula, roseus & ruber. Schæff. *Ag. integer.* Bolt. *Ag. aurantius.* Batsch. *Ag. integer.* Fl. dan. Pastures, particularly under trees. Aug.—Nov.

Var. 3. Gills mostly uniform, yet with a shorter one sometimes intervening; connected by cross threads: pileus crimson.

Schæff. 15—16.

This the most common one, is found in similar situations and seasons with the former. The threads of ligaments connect the gills with each other and with the pileus. They are white, and are mostly found pretty close to the inside of the pileus.—Ray *Syn.* p. 3. *n.* 7. probably this plant.

Ag. emeticus. Schæff.

Var. 4. Gills often forked, sometimes at both ends, and inosculating with those on each side: pileus blood red.

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* The gills in most of Schæffer's plates of this plant, are erroneously drawn, I say erroneously, because his own descriptions often differ from the drawings. Thus in pl. 58, 92. he particularly describes the gills as *equal*, but in the fig. they are of two different lengths, except only in pl. 92. f. 2. The same may be said of pl. 93, 94, where they are described as equal, but figured of two or even three different lengths. I don't know that these varieties, viz. Schæff. 93, 94; have yet been seen in England.

Bull. Ag. sanguineus.

Stem a kind of horny coat filled with a spongy matter. This circumstance is more obvious in this than in the other varieties, but I can find no other difference.

Pastures, particularly under large oaks, Edgbaston.
10th Aug.

Var. 5. Pileus delicate grey, changing to lead colour.

Herefordshire. Pendarvis, Cornwall. Mr. STACKHOUSE. Dam of square stew, Edgbaston. 17th Oct.—Tettenhall Plantations. July.

Var. 6. Pileus clammy, dirty yellow, rather convex: gills yellowish, uniform.

GILLS fixed, perfectly uniform, yellow or yellowish white.

PILEUS convex, centre hollow when fully expanded, viscid, yellow; in some specimens quite yellow in the centre, buffy on the sides, and with still more of a reddish tinge at the edge; 4 inches over.

STEM solid, but spongy; white, or yellowish white, tapering upwards, 2 inches high, and 1 inch diameter.

There is little doubt but Mr. Hudson's luteus, rejecting the Synon. of Vaill. is a variety of integer. Mr. WOODWARD.

Ag. luteus. HUDS.

Mr. Hudson remarks the affinity of this to the Ag. integer, and I suspect that its differences arise from growing in the shade of trees.

Meadows and pastures under trees and in groves. Aug. Oct. —Under a large oak in Edgbaston Park. 10th July, 1792.—At Woolhope, Herefordshire. Mr. STACKHOUSE.

Var. 7. Pileus dirty yellowish or reddish: gills very white, unequal: juice milky, mild. Drawing and description from Mr. STACKHOUSE, who found it on Coplar Hill, near Hereford.

Var. 8. Pileus and stem of a fine uniform purple blue.

[At the foot of St. Vincent's rocks, Bristol. Oct.]

Var. 9. Pileus greenish, rather reddish in the centre.

Packington Park, Warwickshire. Autumn.

AG. Gills watery white, numerous, 4 in a set: pileus red chesnut, edged with white, convex: stem white above, brown yellow below. prætextus.

GILLS fixed, watery white, numerous, narrow, 4 in a set; the long one sometimes appearing a little decurrent from being broader at the shoulder than elsewhere.

PILEUS convex, colour nearly that of a very red horse-chesnut, bordered by a white edge; $2\frac{1}{4}$ inches over. *Flesh* thick, yellowish white.

STEM solid, but spongy, the substance often shrinking so as to leave an irregular hollow: cylindrical, white upwards, dirty yellow brown below; 2 to 3 inches high; $\frac{1}{2}$ inch diameter, often compressed at the base because growing in clusters.

Curtain numerous white cobweb-like threads extending from the edge of the pileus to the stem, and breaking as the former expands; not leaving any permanent ring or mark upon the stem.

This new Agaric was found on decayed oak timber in a damp situation at Edgbaston. Oct.

punic'eus. AG. Gills white, 4 in a set: pileus pinky, convex: stem white.

GILLS fixed, white, rather numerous, 4 in a set.

PILEUS convex, dull pinky red, clothy, sometimes a little bossed; nearly flat when fully expanded, $\frac{1}{4}$ to $\frac{3}{4}$ of an inch over.

STEM solid, white, often crooked, about 1 inch high, and thick as a crow quill.

In clusters on grass plats, adjoining to the house of Thomas Pearson, Esq. at Tettenhall, Staffordshire, and at Edgbaston.

July, 28th Aug. 1792.

trun'catus. AG. (SCHÆFF.) Gills dirty white, in pairs: pileus brick red, conical but flat at top when young: stem whitish, cylindrical, swollen at the root.

Schæff. 251.

Gills fixed. *Pileus* conical but flat at the top when young, changing to convex, and nearly flat when old; 2 inches over. *Stem* solid, $1\frac{1}{2}$ inch high, $\frac{3}{4}$ of an inch diameter, swollen and brown at the base. SCHÆFFER.

Ag. viscidus. HUDS. 614. 18.

This is introduced from Schæffer on the authority of Mr. Hudson, who refers to it as a synonym to the Ag. viscidus of Linn. which is a very different plant to this of Schæffer; but as the character Linnæus gives to his viscidus could never lead Mr. Hudson to this plant of Schæffer, I must suppose that he had found the latter to be the plant before him, and only erred in referring it to the species of Linnæus. Mr. Hudson likewise refers to Scop. 1477, but Scopoli refers his species, which he calls *purpurascens*, to Fl. Suec. 1232, and these seem also to be Schæffer's plant. The real Ag. viscidus of Linnæus has lately been found in England, and will therefore be introduced in its proper place.

Woods and groves. Sept. Oct.

*AG. (BOLT.) Gills white, 4 in a set: pileus rather conical, knappy, yellow: stem white, in part covered with yellow knap. cro'ceus.

Sowerby 19—*Bolt.* 51. 2, *too small.*—*Bull.* 362, *larger and more of a brown cast.*—*Batsch.* 97.

Gills fixed, numerous. *Pileus* at first conical. *Stem* cylindrical, solid, 3 inches high, thick as a swan's quill; white, but more than half its length covered with a woolly knap of a yellow colour. *Curtain* fugacious, fixed to the stem where the woolliness ends. BOLT.

GILLS numerous, unequal, pure white.

PILEUS golden brown, velvety, convex.

STEM colour of the pileus as high as the ring. *Curtain* delicate, brown, separating in fringes on the edge of the pileus and on the stem. Mr. STACKHOUSE.

Ag. ochraceus. Bull. *Ag. croceus.* Bolt. *Ag. flavo-floccosus.* Batsch. In the Burks, and other woods about Halifax. Comb Woods, near Bath. Mr. STACKHOUSE.

AG. Gills white, fleshy, 2 or 4 in a set: pileus dirty brown yellow, much hollowed: stem white. sordido-fla'vus.

GILLS fixed, white, fleshy, in fours or in pairs; narrow.

PILEUS dirty brown yellow, very hollow in the centre, but the edge curled in, crumpled, and very irregular, 5 inches over. *Flesh* white, in thickness twice the breadth of the gills.

STEM solid, white, about 1 inch high, nearly as much in diameter, tapering and rather rounded at the bottom.

Notwithstanding the difference in the composition of the gills I am inclined to believe that this and the 2 following are not specifically different.

Under trees in Edgbaston Park. Aug. Sept.

elephanti'nus. AG. (BOLT.) Gills yellowish white, fleshy, wide apart, 4 in a set: pileus brown yellow, changing to black, and cracking: stem white.

Bolt. 28—*Sowerby* 36—*Battar.* 9. *A.*

GILLS fixed, yellowish white, very fleshy, wide asunder, 4 in a set.

PILEUS brown yellow, viscid, changing to almost black, and cracking like burnt clay; semi-globular, but with irregular depressions. *Flesh* white.

STEM solid, white, contracted at the bottom, 2 to 3 inches high, and 2 in diameter.

This and the following species require further attention to determine whether they really are or are not distinct. I am disposed, from their general habits, to believe they are not, but yet I am staggered by the remarkable differences in the structure of the gills.

Ag. elephantinus. Bolt. Edgbaston Park, in various places, but always under oak or Spanish chesnut trees.

13th Aug. 1791.

aura'tus. AG. Gills yellow white, uniform, often splitting, connected by threads: pileus golden yellow, viscid, flat, the side turned down: stem white.

GILLS fixed, yellowish white, in one series only, often splitting, connected and strengthened by transverse threads or ligaments extending from one gill to another near the inner surface of the pileus.

PILEUS deep golden yellow, changing when old to dark blotches as if the effect of fire; viscid, flattish at the top, 5 inches over, about an inch of the border turned down nearly square with the flat top, and parallel to the sides of the stem. *Flesh* white.

STEM solid, white, tapering upwards so as to be far thinner at the top, 2 inches high, 1 inch diameter.

When an unexpanded button, the whole plant is entirely white, or yellowish. This species, though so large and so remarkable, seems to have been overlooked. Probably the dark blunt blotches upon the pileus may have caused it to be confounded with the Ag. *adustus*, before mentioned, or with the Ag. *elephantinus.* The difference however of structure has satisfied me that it is not the former species. Major Velley very justly remarked to me, that the *viscid* Agarics are much disposed to shew dark tints. This plant cannot be the Ag. viscidus of Mr. Hudson, for he cites, though doubtfully, Vaill. 62. *n.* 14, which is a plant of no uncommon bulk or solidity. The gills too in his are yellow.

Ag. quinquepartitus. LINN.

Under a large oak, near the second stew, Edgbaston Park. 21st Aug. 1791.

*AG. (RAY.) Gills white, fleshy, brittle, 4 in a set: pileus blue green: stem cylindrical, whitish. **vir'idis.**

Bolt. 12—*Sterb.* 5. *C.*—*(Schæff.* 1, *is Ag. æruginosus.)*

GILLS fixed, narrow.

PILEUS hemispherical, 2 or 3 inches diameter, greyish, blue, dry, feels like coarse cloth. *Flesh* thick, firm, hard, brittle, white.

STEM solid, dusky white, cylindrical, hard, 3 inches high, thick as a swan's quill. BOLTON.

Fungus magnus viridus. RAY Syn. p. 2. *n.* 3. *Ag. cæruleus.* BOLT. p. 12.

Var. 2. Gills whitish: stem greenish.

Ag. viridis. Huds. 614. 16. excluding the references to Haller and Schæffer.

In woods. Aug.—Oct.

(2) GILLS brown.

AG. Gills brown, in pairs: pileus yellow brown, bluntly conical: stem brown, scurfy: curtain permanent. **constric'tus.**

GILLS fixed, watery brown, tender, in pairs.

PILEUS yellow brown, bluntly conical approaching to globular, the edge being turned in, and held down by the curtain; less than $\frac{1}{4}$ of an inch high. *Curtain* brown white, tough, permanent.

STEM solid but pithy, brown, paler upwards, scurfy, thick as a thin crow quill, near $\frac{3}{4}$ of an inch high.

On rotten wood; plantations, Edgbaston. Sept.

AG. Gills light brown, 4 in a set: pileus rich yellow, brown, flat but rather bossed: stem white above, yellow brown and woolly below: ring permanent. **muco'sus.**

Schæff. 312—*Bull.* 549, *very stiff and unnatural.*

GILLS fixed, light brown, 4 in a set.

PILEUS yellow brown, flattish, darker and rather bossed in the centre, about 2 inches diameter.

STEM solid, above the ring white, below it brown and woolly, 3 inches high, 3-8ths of an inch diameter. *Ring* permanent. *Flesh* brown white.

The pileus and stem are remarkably viscid.

Ag. limacinus. Schæff. *Ag. mucosus.* Bull. In the Earl of Aylesford's Park at Packington, Warwickshire.
Autumn.

vacci'nus. **AG.** (SCHÆFF.) Gills pale brown, 4 or 8 in a set: pileus brown, scurfy, convex, gently bossed: stem cylindrical, pale brown.

Schæff. 25; very good.

GILLS fixed, pale, changing to reddish brown, white at the edge when young, 8 in a set.

PILEUS brown, convex, slightly bossed, scurfy with scales of various shades of brown, 1½ to 3 inches over.

STEM solid, cylindrical, brown, scored, 3 to 4 inches high, ¼ to ½ inch diameter, often crooked.

Flesh of the whole plant white, attaining a reddish tinge when exposed to the air.

Ag. vaccinus. Schæff. Plantations in Edgbaston Park.
13th Sept. 1791.

Var. 2. Pileus yellow brown with dark blotches: stem yellowish, scored.

In Packington Park. Autumn.

sor'didus. **AG.** (DICKS.) Gills brown, 8 in a set: pileus darker brown, hollow: stem cylindrical, brown, bulbous.

Bolt. 59—*Dicks. t.* 3. *f.* 1.

GILLS fixed, dead brown, 4 or 8 in a set, moderately numerous.

PILEUS brown, darker than the gills or stem, and still darker in the centre; funnel-shaped, 1½ to 2½ inches over.

STEM solid, brown cylindrical, but a little swollen at the base to form the root, 2 to 4 inches high, 1-8th to 1-4th diameter.

Ag. stipitatus, pileo et lamellis livido-fuscis, centro umbilicato, margine deflexo, stipite basi crassiore.—*Obs.* Pileus totus fuliginosus. Dicks. fasc. cryp. p. 16.

Ag. sordidus. Bolt. and Dicks. Pastures, Edgbaston. Nov.

Pastures and commons near Bungay. Mr. Woodward.—Woods near Bath. Mr. Stackhouse.

Ag. Gills cool brown, serrated: pileus chocolate colour, widely conical: stem cool brown: ring permanent. spongio′sus.

Gills fixed, tearing from the stem; light brown: 4 in a set.

Pileus bluntly conical, dark chocolate colour, edged with white spots the remains of the curtain; 1½ to 2 inches over.

Stem solid, but very spongy in the central part; light brown, scored, 2 to 2½ inches high, near ½ inch diameter, thicker downwards.

Packington Park, Warwickshire. Autumn.

Ag. Gills pale brown: pileus dark brown, flat, the edge turned in: stem light grey, reticulated, club-shaped. clava′tus.

Gills fixed, brown, few, in pairs, very small.

Pileus dirty dark brown, flat, but a little depressed, the edge turned in; ¾ inch diameter.

Stem solid, light grey, reticulated with darker scores, club-shaped, 2 or 2 ½ inches high, thick as a goose quill at the top, but more than twice that size towards the bottom.

In the Earl of Aylesford's Park, Packington, Warwickshire. Autumn.

Ag. Gills brown, numerous, 4 in a set: pileus pale yellow, centre brown, edge white: stem white. umbra′tus.

Bull. 574. 2.

Gills fixed, brown, crowded, 4 in a set, partly tearing from the stem as the pileus attains its full size.

Pileus pale yellow, brown in the centre, insensibly changing to white towards the edge; convex, irregular, bossed, edge turned in, 1½ to 2 inches over. *Flesh* white, pithy.

STEM solid, but pithy; white, generally crooked, 1½ inch high, not quite so thick as a goose quill.

Ag. parasiticus. Bull. Red rock plantation, Edgbaston.
Sept.

coria'ceus. AG. Gills pale brown, narrow, 4 in a set: pileus uniform cool brown, somewhat glossy, nearly flat: stem pale brown.

Batsch. 109.

GILLS fixed, pale dead brown, narrow, not crowded, 4 in a set.

PILEUS pale cool uniform brown, rather glossy, flat, the edge turned down and very thin; 1½ to 2 inches over. *Flesh* hardly any.

STEM solid, whitish brown, straight, 1½ to 2 inches high, ¼ inch diameter, thickest adjoining to the pileus.

The whole plant has a tough leathery texture. The name given by Batsch has likewise been applied by Bolton and Bulliard to the Ag. alneus and Ag. betulinus, but improperly. All the specimens we found had their stems perfectly flat, and the gills readily separating from the top of the stem but not without taking with them its outer skin.

Ag. coriaceus. Batsch. Plantations at Edgbaston, on rotten sticks.
Sept.

cacumina'tus. AG. Gills deep yellow brown: 4 in a set: pileus pale yellow brown: sharply peaked: stem pale brown.

GILLS fixed, deep yellow brown, 4 in a set, moderately numerous.

PILEUS pale yellow brown, convex, sharply peaked in the centre, dry and sometimes rather satiny, about 1 inch over, when fully grown subject to crack at the edge.

Flesh dull pale brown.

STEM solid, pale brown, size of a crow quill, near 2 inches high. The central part of the stem filled with a whitish pith, and when this shrivels it has much the appearance of a hollow stem.

The conical pointed boss in the centre of the pileus is the most striking feature in this plant.

Red rock plantation, Edgbaston, 30th Sept.

Ag. (Bull.) Gills red brown, broad and short, 4 in a set: pileus brown, conical, cracked: stem brown, tapering upwards: curtain pale brown. 4 araneo′sus.

Bull. 431. 4; *araneosus rimosus.*

Gills fixed, reddish brown, 4 in a set, large gills nearly as broad as long, and fixed by a claw to the stem.

Pileus convex, rather conical, brown, satiny, with cracks of a paler colour from the centre to the edge, 1 ½ inch over. *Flesh* very thin, pale yellow.

Stem solid, brown, satiny, cylindrical, but rather thickening towards the bottom, 2 to 3 inches high, 2-8ths to 3-8ths diameter.

Curtain pale brown, cobweb-like, evanescent.
Edgbaston Park. 17th Sept. 1791.

Var. 2. Pileus with black brown, and chocolate stripes, penetrating through the skin.
At Pendarvis, Cornwall. Mr. Stackhouse.

Var. 3. Pileus satiny, sometimes edged with white: stem white above and below.

Gills rather fleshy, brown, 4 in a set, in the older plants rather decurrent.

Pileus brown, edge turned down, centre peaked, ½ to ¾ inch diameter. *Flesh* brown.

Stem satiny, crooked, 2 inches high, thick as a raven quill, marked with the vestige of a curtain; irregularly hollow with age.
Red rock plantation, Edgbaston. 7th Sept. 1793.

Ag. Gills light brown: pileus dark brown, convex: stem light brown. hippopi′nus.

Gills fixed, light brown.

Pileus dark brown, paler at the edge, nearly semi-globular, scarcely ¼ of an inch diameter.

Stem solid, brown, ¾ of an inch high, mostly crooked, thickness of a pin.

On the cones of the Scotch fir, in the Earl of Aylesford's Park at Packington, Warwickshire. Autumn.

Ag. (Bull.) Gills olive brown, 2 or 4 in a set: rimo′sus, pileus striped, reddish brown and yellow, conical, bossed : stem yellowish white, cylindrical.

Bull. 388; *also* 599.

GILLS fixed, olive brown, 2 or 4 in a set.

PILEUS conical, bossed, striped red brown and yellow, by cracks extending from the edge to the base of the boss; border uneven, 2 inches over; tearing with age.

STEM solid, yellowish white, cylindrical, but thickened just under the pileus, crooked, smooth, 2 to 2 ½ inches high, thick as a goose or a swan quill.

Ag. rimosus. Bull. [Under trees at Pendarvis. Mr. STACKHOUSE. Pastures, Edgbaston.]

Early in Aug. to the end of Sept.

orichal'ceus. AG. (BATSCH.) Gills dark cinnamon, not numerous, 4 or 8 in a set: pileus gently convex, pale cinnamon, edge rather turned down: stem whitish, nearly cylindrical.

Batsch. 184—*Bull.* 596. 1.

GILLS fixed to the stem by a claw, very broad, dark cinnamon, not very numerous, 4 in a set in the smaller, 8 in the larger specimens.

PILEUS regularly and gently convex, light cinnamon, sometimes darker in the centre, edge a little turned in, viscid in moist, satiny in dry weather; 1 to 3 inches over. *Flesh* white, not thick. *Curtain* evanescent, leaving a stain on the stem.

STEM solid, whitish, with a few brown scales, often stained by the fall of the seeds from the gills, which are of a Spanish snuff colour, cylindrical, but rather thickest upwards; 2 to 4 inches high, ¼ to ½ inch diameter. *Root* a small bulb.

A large quantity of seeds fall from the gills of this Agaric, staining the fingers as well as the stem of a Spanish snuff colour. Stem solid, but it has a central pith different in colour from the surrounding flesh.

Ag. orichalceus. Batsch. *Ag. aimatochele.* Bull. If the dissection should agree. Plantations at Edgbaston, and at Barr. Sept.

acticau'lis. AG. Gills brown, numerous, 2 or 4 in a set: pileus convex, light brown buff, border whitish: stem white, bending, splitting.

(One of the taller fig. in the plate of Bull. 102, *if properly coloured, would give a tolerable idea of this plant in its fully expanded state.)*

GILLS fixed, brown, very numerous, 2 but mostly 4 in a set.

PILEUS gently convex, nearly flat, when fully expanded, cracking in the centre, brownish buff in the middle, paler and almost white towards the edge, 2 to 2 ½ inches over. *Flesh* very thin, white.

STEM solid, white, cylindrical, tender, splitting, mostly crooked, 4 or 5 inches long, thick as a goose quill.

Juice of the stem dilutely milky, the milk not acrid. The whole plant very tender.

Plantations, Edgbaston, amongst old leaves and deep grass; several together. 11th Oct. 1790.—25th Sept. 1791.

Var. 2. Gills light reddish brown: pileus dark red brown, centre depressed: stem short.

GILLS fixed, lighter colour than the pileus, numerous, unequal.

PILEUS deep red brown, smooth, circular, depressed in the centre, edge turned down, ½ inch over.

STEM solid, short, thick, the size of a reed. *Juice* milky, mild.

Specimen and description from Mr. STACKHOUSE.

AG. (BATSCH.) Gills light reddish brown, 4 in a set: pileus brown buff, whitish at the edge: stem yellow white. obsole'tus.

Batsch. 103—*Bull.* 576. 1.

GILLS fixed, pale, reddish brown, broad, 4 in a set.

PILEUS convex, very irregular, sometimes peaked, brown buff, more or less white at the edge, 1 to 1½ inch over. *Flesh* thin.

STEM solid, pithy, yellowish white, rarely straight, often eccentric, 1 to 1½ inch high, thick as a small goose quill. In clusters, often united both at top and bottom, the pileus seldom regular from this cause. The plant has a sweetish hawthorn-like, but nauseous and fainty smell. In its very young state the gills seem loose, but as the stem advances in growth, part of the central flesh of the pileus seems to elongate to form the upper part of the stem, and then they are evidently fixed to the stem.

Slope of the Boat-house field, Edgbaston. 10th Sept. 1793.

nu'dus. AG. (BATSCH.) Gills cool brown, numerous, 4 or 8 in a set: pileus brown, gently convex, concave with age; satiny when dry: stem brown.

Bull. 439, the lower figures.

GILLS fixed, cool brown, numerous, tender, 4 or 8 in a set.

PILEUS cool brown, convex, regular, sinking in the centre when old, viscid when moist, satiny when dry, 2 to 3 inches over. *Flesh* spongy, white.

STEM solid, cool brown; 1 ½ inch high, thick as a raven quill.

Mr. Bulliard has figured several varieties in the plate referred to above, but I think the upper figures ought to rank under the Ag. violaceus, notwithstanding the want of a curtain.

Plantations, Edgbaston. 13th Sept.

subpurpuras'cens. AG. Gills reddish brown: pileus brown, purplish, at the edge; stem violet-coloured, scurfy, bulbous at the base.

Batsch. 74.

GILLS fixed, reddish brown, numerous, 4 or 8 in a set, the surface when abraded assuming a purplish tinge.

PILEUS brown, of a faint leaden purple towards the edge, convex; 2 ½ inches over. *Flesh* white, changing to purple when exposed to the air.

STEM solid, of a leaden purple, more or less streaked with brown, 2¼ inches high, 3-8ths diameter, swelling at the base into an oblong bulb. *Curtain* fugacious; leaving a stain on the stem.

Ag. obsoletus. Batsch. *Ag. gnaphacephalus.* Bull. Pastures, Edgbaston. Sept.—Oct.

uni'color. AG. Gills cool brown, numerous, 4 or 8 in a set: pileus brown, gently convex, concave with age, satiny when dry: stem brown.

GILLS fixed, cool brown, numerous, tender, 4 or 8 in a set.

PILEUS cool brown, gently convex, regular sinking in the centre when old; satiny when dry, 2 to 3 inches over. *Flesh* spongy, white.

STEM solid, cool brown, cylindrical, 1 ½ inch high, thick as a raven's quill.

Solitary and in clusters.

Plantations, Edgbaston. 13th Sept.

(3) GILLS Purplish.

AG. (SCHÆFF.) Gills brown, changing with age to a pinky or lilac tinge, 4 to 8 in a set: pileus chesnut, semi-globular, rather flatted at top, edge rolled in: stem thick, white or pinky: curtain cobweb-like. glauco'pus.

Bull. 96; the habit excellent—Schæff. 53.

GILLS fixed, brown; when old changing to a pinky or lilac colour, small for the size of the plant, 4 in a set in the younger, 8 in the older specimens.

PILEUS uniform, pale chesnut, covered with a very glutinous varnish; semi-globular, but a little flatted at the top, and the edge considerably turned in; 4 inches over. *Flesh* white, with a pinky tinge.

STEM solid, whitish, with a pinky or lilac tinge, 2 inches long, 1 inch diameter. *Root* very large, bulbous.

Curtain like a fine cobweb, whose threads extend from the stem to the edge of the pileus.

Ray *Syn.* p. 3. n. 13, has been referred to for this plant, and also for the Ag. *violaceus* of Linn. but though the general description perfectly accords with *this* species, yet the white gills, which are repeatedly mentioned, satisfy me that it is a plant different from this as well as from the *violaceus*, which it in no respect resembles, except merely in the colour of the stem. Major Velley justly remarks, that this plant of Dillenius agrees with 2398 of Haller, who refers to Schæff. 38; a plant not now known to exist in England, but probably it will not much longer escape the observation of our botanists.

Ag. *bulbosus*, fl. Angl. is I believe the plant before me. Mr. Hudson has been censured for making this a species different from the *violaceus* of Linn. but I am satisfied that he has done right, and that his character is sufficient to discriminate them. He does not say, " lamellis *cæruleis*," but " *cærulescentibus*," by which I imagine that he means they attain this colour in the progress of growth only, and are not originally so. His " stipes *brevis*," is very expressive, and his character of the pileus is pretty exact. Had he referred to Schæff. 53, instead of 34, which is the violaceus, his readers would have understood him better, and his reference to Ray has only served to increase the misunderstanding. This is one of the Agarics which, as well as some of the Boleti, are much disposed when in pickle, to run into the vinous fermentation.

Ag. glaucopus. Schæff. *Ag. araneosus.* Bull. Plantations, Edgbaston; rare. 5th Sept.

Var. 2. Gills brown green: stem greenish white.

Schæff. 42.

Ag. varius. Schæff. In Packington Park, Warwickshire.

viola'ceus. AG. (LINN.) Gills purple, numerous, 8 in a set: pileus purple to brown, convex, edge turned down: stem purple, cylindrical.

Ag. stipitatus, pilei margine violaceo tomentoso, stipite cærulescente lana ferruginea. *Fl. suec.* 1226.

Sowerby 209—*Schæff.* 3. *fig.* 1. 5. 6, *monstrous but not uncommon varieties.—Bull.* 250. *and* 598. 2—*Bolt.* 52, *tints very deep—Schæff.* 56, *monstrous varieties—Mich.* 74. 1. *Buxb.* 4. 22, *not at all characteristic—Buxb.* 4. 11, *a monster, but the description agrees—(Buxb.* 4. 9, *certainly not our plant; Batsch.* 22, *very unlike it.)*

GILLS fixed; from pale lilac to deep violet; numerous, 8 in a set; long gills sometimes cloven, and a few of them rather decurrent.

PILEUS purple, or reddish brown, or purple only at the edge, soft, smooth, firm, convex, but centrally depressed with age, and cracking at the edge, which is always rather turned down; from ½ inch to 5 inches over.

STEM solid, cylindrical, purple, bulbous at the base, from 1 to 4 inches high, and from ¼ to 1 inch diameter. *Curtain* like a cobweb, its fragments sometimes left hanging to the edge of the pileus.

This species differs very much in size, as well as in its tints. In an advanced state the pileus loses its lilac colour and assumes a russet hue, yet the gills continue with little or no change of colour. Here I must remark, that a more permanent criterion, as to colour, may be looked for in the gills, than in any other part of the Agarics in general. Major VELLEY.

Pileus large, circular, slightly convex, colour various, from the deepest purple to a rusty brown. Gills of a beautiful pale purple, unequal lengths. *Stem* short, thick, solid, swelling at the base. Bulliard remarks a circumstance which I have observed, that in maturity it emits a plentiful powder of the colour of Spanish snuff. Mr. STACKHOUSE.

Ag. violaceus and amethystinus. Schæff. *Ag. araneosus violaceus.* Bull. *Ag. violaceus.* Bolt. Edgbaston and Barr plantaions, not uncommon. Oct.—Dec. Woods near Bath. Major VELLEY.—Powick near Worcester. Mr. STACKHOUSE.

Var. 2. *nudus.* Without a curtain: gills very irregular.

Bolt. 147.—*Bull.* 439. *A*—*Schæff.* 34—*Fl. dan.* 1133.

GILLS violet coloured, irregular in disposition, 2, 3, or 4 in a set, turning brown with age.

PILEUS pale brown with more or less of a violet tinge, smooth, convex and bossed, when fully expanded concave, ½ to 2 or 3 inches diameter.

STEM solid, pale brown with a violet tinge, scored, cylindrical upwards, but thickening into a bulb at the base, 1½ to 2½ inches high, and ¼ to ½ inch diameter.

This plant varies very much in size, and the violet tints are ery evanescent.

Ag. bulbosus. Huds. *Ag. cærulescens.* Schæff. *Ag. nudus.* Bull. Barr, Staffordshire. Edgbaston, pastures. Oct.

It is often found with us in similar situations with the preeding; nor can I consider with Mr. Bulliard that the absence f the curtain ought alone to constitute a different species.

AG. (BULL.) Gills brown lilac, numerous, 8 in a set: pileous bluish green, gently convex, edge a little turned down: stem bluish green, scored, crooked: curtain white. cya'neus.

Bull. 170. *and* 530—*Bolt.* 30.

GILLS fixed, brown lilac, white within, generally 8 in a set, but in some large specimens the 2 longer series of gills divide towards the edge of the pileus, and then the small gills are not to be found.

PILEUS conical when young, at full growth, nearly flat, but a little turned down at the edge; cracking in the centre with age; bluish green, viscid, 2 to 3 inches over. *Flesh* white.

TEM solid, bluish green, whitish with scurf when young, crooked, scored, 2 to 3 inches high, ¼ to ½ inch diameter. *Root* bulbous. *Curtain* white, cottony.

It is remarkable that when the green viscid mucilage is craped off the pileus, or wears off in its more advanced age, ie real colour appears, which is nearly that of copper. Also hat the gills are white when their cover of purple paint is renoved. The whole skin of the pileus easily strips off and shews ie white flesh underneath.

Ag. cyaneus. Bull. *Ag. politus.* Bolt. Rookery, in Edgaston Park. Oct. Nov.

tor′tilis. *AG. Gills brown, changing to purplish flesh-colour, few, 4 in a set: pileus red brown, convex, turning up with age: stem brownish or dusky flesh-colour.

Bolt. 41. *A.*

GILLS fixed, brown sometimes with a purplish cast.
PILEUS dark reddish brown, convex, turned up with age, the edge crumpled and distorted in various modes, 2-8ths to 3-8ths of an inch over.
STEM solid, brownish, $\frac{1}{4}$ of an inch high, thinner than a swallow's quill.

Ag. tortilis. Bolt. Rich garden mould, about the roots of umbrageous plants.

(4) GILLS buff.

fla′vidus. AG. Gills reddish buff: pileus pale yellow, bossed: stem pale yellow.

Sowerby, 96—*Schæff.* 35.

GILLS fixed, deep buff, numerous, 4 in a set.
PILEUS pale yellow, bluntly conical, bossed, full 2 inches over.
STEM solid, pale yellow, dark brownish at bottom, 2 inches high, thick as a swan's quill. *Flesh* yellowish.

In the Earl of Aylesford's Park at Packington.

Var. 2. Gills brown buff, pileus light buff: stem white, flesh white.

Possibly distinct. *Gills* broad, crumpled, waved at the edge. *Pileus* very convex, 4 inches over, edge turned in. *Stem* 4 or 5 inches high, near $\frac{1}{2}$ inch diameter, bulbous at the base. *Flesh* very thick, whitish.

In Packington Park.

ru′fus. AG. Gills tawny, irregular: pileus bright tawny, glossy: stem red brown.

Bull. 526; *the upper figures, but the pileus darker than in our specimens.*

GILLS fixed, fox-coloured, not numerous, 2, 3 or 4 in a set, but mostly 4.
PILEUS bright fox-colour, very glossy and satiny, bossed, the edge turned in; 1 to $2\frac{1}{2}$ inches diameter. *Flesh* yellowish.
STEM solid, dead reddish brown, darkening and becoming ir-

regularly hollow with age; generally crooked, 2 to 3 inches high, thick as a swan's quill.

Ag. sericeus. Bull. but that name had been given before by Schæffer and Batsch to another plant. Plantations at Edgbaston, in clusters. Sept.

AG. Gills buff, very numerous, 4 or 8 in a set: pileus brown buff, entirely inverted: stem pale brownish buff. calycifor'mis.

Batsch. 118, *(represents our plant, but the Gills in ours are not split, nor have they the least degree of decurrence.)*

GILLS fixed, buff, changing to snuff-coloured brown; very numerous, 4 or 8 in a set.
PILEUS brownish buff, deepest in the centre, broad, thin, soon turning entirely up, 1 to 2 inches over.
STEM solid, but becoming hollow with age, pale brownish buff, 2 inches high; thick as a raven's quill.

The whole pileus soon turns up so that the plant appears like a rummer glass. It is rare to detect it with the pileus otherwise than turned up, so that its convex or flat state is probably of short continuance.

Plantations in Edgbaston Park. 5th Nov. 1790.

AG. Gills buff, narrow, few, 4 in a set: pileus nearly flat, leathery, livid tawny: stem buff, rather thick. il'litus.

GILLS fixed, light buff, 4 in a set, but irregular, very narrow, very thinly set, curling up in drying, and adhering so closely to the under surface of the pileus, by means of a gelatinous matter with which the plant abounds, that each gill assumes the appearance of a hollow tube.
PILEUS tawny, inclining to a leaden hue, smooth, of a thick leathery texture, but not fleshy, 1½ inch diameter.
STEM solid, light buff, thick for the size of the plant. Major VELLEY.

In a pine grove by the sham castle on Claverton Down, near Bath, but rare. Major VELLEY. In Packington Park, Warwickshire.

AG. Gills buff, 4 in a set: pileus orange red, flat, border turned down: stem reddish, cylindrical: juice milky, mild. u'b.

GILLS fixed, pale buff, numerous, 4 in a set.
PILEUS full brick red, to chesnut, flat; but the centre depressed, and the edge turned down; 1 to 2 inches over.

STEM solid, red, cylindrical, strong, 2 inches high, 3-8ths diameter.

Specimen, drawing, and description, from Mr. STACKHOUSE, who found it in woods near Bath; Comb Green. Oct. 1788.

*Var. 2. Stem much paler than the pileus: juice yellow.

Bolt. 9—*Bull.* 567. 2.

Ag. theiogale. Bull. Woods about Halifax. Oct. Mr. BOLTON.

(5) GILLS yellow.

conna'tus. AG. Gills brown yellow: pileus pale yellow, centre darker: stem yellow brown.

GILLS fixed, brown yellow, 4 in a set.
PILEUS yellow, convex, rather bossed; centre darker, 1 to 1½ inch over.
STEM solid, yellow upwards, browner and darker below, 2 inches high; thick as a goose quill.

Grows in clusters, in Lord Aylesford's Park, Packington. Autumn.

*Var. 2. Gills pale yellow; pileus pale yellow, centre tawny: stem dirty buff.

Bolt. 148—*(Mich.* 79. 4. *is a very different plant; and Sterb.* 25, *more like Ag. fascicularis.)*

Varies much in size. It is a rare species.
GILLS fixed, arched, narrow, pale yellow, 4 in a set.
PILEUS convex, thin, ½ to 2 inches over. *Curtain* pale yellow, fugacious.
STEM solid, readily splitting, 3 inches high, ¼ inch diameter; several from one root, which is long, taper, fibrous. BOLTON.

Ag. ramoso-radicatus. BOLT. 148. Plantations, Fixby Hall, and near Darlington.

fra'gilis. AG. Gills yellow, 4 in a set: pileus and stem golden brown.

Ag. stipitatus, pileo convexo viscido pellucido, lamellisque luteis, stipite nudo.

Vaill. par. xi. 16. 17. 18—*Schæff.* 230.

GILLS fixed, pale yellow, 2, 4 or 6 in a set; long ones 16 or 18.

PILEUS rich brown yellow, convex, at first pointed then dimpled in the centre, sides sometimes scored, 2 to 3-8ths of an inch over.
STEM solid, pale or rich brown yellow, paler upwards, tender, watery, viscid; 1½ inch high, not thicker than a large pin. VAILL. SCHÆFF. *Stem* tall in proportion, generally curved, smooth. *Pileus* thin, without flesh, thence transparent; and from the gills being visible through it, striated. *Gills* narrowing at each end. Mr. WOODWARD.

Ag. fragilis. Schæff. Ray *Syn.* p. 8. n. 38. Woods and hedges amongst moss and fallen leaves. [Pine Grove at Kirby, Norfolk, on moss. Mr. WOODWARD.—Pool dam, Edgbaston.] Aug.—Oct.

*AG. (SCHÆFF.) Gills yellowish, toothed, 4 in a set: squamo'sus. pileus brown yellow, convex but irregular, ragged with scales: stem brown yellow, scaly.

Schæff. 29 *and* 30.

GILLS fixed, whitish yellow, toothed or notched at the edge.
PILEUS brown or greyish yellow, scaly, convex, but very irregular in shape, sometimes hollow in the centre, 3 inches over.
STEM solid, brown yellow, scaly, irregular in shape, 1½ to 3 inches high, ½ inch or more in diameter. SCHÆFFER. The hard scaly texture of the pileus and stem, together with the indented gills, well characterized in Schæffer's figures. Major VELLEY.

Ag. squamosus. Schæff. HUDS. 614. 17. Old trees in Ditchingham. RELHAN. Fl. Cantab.—On decayed trees, particularly on old willows. Aug.—Nov.

*AG. Gills pale or dirty yellow, nearly white at the edge: citri'nus. pileus rich brown, golden yellow and waved at the edge when fully grown: stem pale greenish yellow.

Sowerby 8—*Schæff.* 41.

GILLS fixed, 4 in a set.
PILEUS brown, darker with age and becoming yellow at the edge; convex, but when old, inverted 2 to 4 inches over.
STEM solid, cylindrical, but rather thickest in the middle; near 3 inches high, ½ inch diameter.

Mr. Sowerby informs us that the plant is enveloped in a veil of gluten when young.

Ag. limacinus. Sowerby; not of Schæffer. Found by Mr. Sowerby abundantly in fir plantations at Cossey, near Norwich. October.

erona'tus. *AG. (BOLT.) Gills pale watery straw colour, 4 in a set: pileus brown, hemispherical, semi-pellucid: stem, its lower half cloathed with yellow wool.

Sowerby 37—*Bolt.* 58.

GILLS fixed, few, thin, narrow, pellucid, 4 in a set.
PILEUS like a mixture of brown and white wool, thin, without flesh.
STEM sold, firm, tough, pale straw colour, upper part cylindrical, smooth, lower half surrounded with a cottony or woolly substance of a bright yellow colour; 3 inches high, thick as a raven quill. BOLTON.

Ag. perronatus. Bolt. A rare species. In the deep and moist parts of woods near Halifax. BOLT.—[In the Abbey Wood, at Flixton, Suffolk, and Earsham Wood, Norfolk. Mr. WOODWARD.]

*Var. 2. Gills pale brownish yellow; pileus and stem pale yellow.

Schæff. 77.

GILLS numerous, narrow.
PILEUS whitish, flat, thin, edge turned down, 1 or 1½ inch over.
STEM solid, cylindrical, whitish yellow, near 2 inches high, thick as a raven's quill. Smells like hawthorn. Description and drawing from Mr. STACKHOUSE.

Ag. caryopyllæus. Schæff. Woods near Bath.

*Var. 3. Gills pale whitish yellow: pileus yellowish white, flat: stem tapering upwards, rust-coloured and woolly below.

Bull. 158 *and* 524. 1.

GILLS unequal.
PILEUS flat, 1 inch over, often depressed in the middle and waved at the edge.
STEM solid, 3 or 4 inches high, thick as a duck's quill, and covered with rust-coloured wool below, tapering and thinner upwards. It has a strong smell of garlic. Mr. STACKHOUSE.

Woods near Bath. Mr. STACKHOUSE.—Bagley Wood, Oxfordshire, the Hon. Mr. WENMAN.

œdemato'pus. *AG. (SCHÆFF.) Gills pale brownish yellow, few, fleshy, in pairs: pileus reddish brown, conical, edge turned in: stem dirty brown, thickest in the middle.

Bolt. 43—*Schæff.* 259; *colours richer.—(Not Bull.* 76; *nor Batsch.* 15—*Fl. dan.* 833. 1, *is Ag. aurantius.)*

Gills fixed, pale yellow, narrower, brittle, crumpled.

Pileus dusky reddish brown, conical, edge turned in, crumpled, waved, splitting, 2 inches from the edge to the top of the cone. *Flesh* thick, dry, white.

Stem solid, brown grey, hard, dry, brittle, thickest in the middle, 5 or 6 inches high, and 1 inch or more in diameter in the thickest part. **Bolton.**

Ag. œdematopus. Schæff. *Ag. rigidus.* Bolt. Plantations and wood grounds about Fixby Hall. July, August.

Ag. Gills yellow, very irregular: pileus rich orange: stem yellow. rheoi'des.

Gills fixed, yellow, numerous, very short, 2 or 4 in a set, but very irregular.

Pileus orange yellow, convex, scurfy or scaly, sloping; edge very much turned in, 4 inches over. *Flesh* yellow.

Stem solid, yellow, fibrous, often crooked and tapering at the bottom, compressed, hunched, and variously distorted, 2½ inches high, 1½ diameter.

Curtain yellow, tough, permanent. Growing in clusters, in which many of the plants are much smaller, and the heads nearly globular, but 3 or 4 attain the sizes mentioned above. The whole plant both within and without is nearly the colour of Rhubarb.

On the stumps of old Hawthorns, and rotten Alders, Edgbaston Park, and in the road from Birches Green to Curdworth. Sept. Oct. 1793.

Ag. (**Schæff.**) Gills golden yellow, 4 in a set: pileus fine lake red, to rich orange buff, convex, bossed: stem buff and rose, tapering upwards. xerampeli-nus.

Sowerby 31—*Schæff.* 247—*Battar.* 4. *C. just broke forth from its wrapper.*—*Mich.* 77. 1—*Clus. hist.* 272. 273.

Gills fixed, bright golden yellow, just under the edge of the pileus nearly orange, very regularly disposed 4 in a set; none of them branched, fleshy, brittle, serrated at the edge with a paler cottony matter.

Pileus fine lake red, changing with age to a rich orange and buff, and every intermediate shade of these colours which render it strikingly beautiful: convex, centre bossed, edge turned down, 3 to 4 inches diameter, clothy to the touch. *Flesh* pale buff.

Stem solid, nearly cylindrical, but gradually tapering upwards, rich buff, shaded with fine rose red; 3 to 5 inches high, ½ inch diameter. *Flesh* pale, buffy, spongy, elastic.

The most splendid of all the Agarics. It is said to be common in Italy, and to be brought to the markets for sale. That the ancient Romans esteemed it one of the greatest luxuries of the table. Having been made the vehicle for poison to Claudius Cæsar, by his wife Agrippina, it has been celebrated by the satiric pen of Juvenal, and the epigrammatic muse of Martial. See Schæffer, p. 65, chiefly taken from Clus. hist. 273, where the reader will find several other curious circumstances respecting it. But I am pretty well satisfied that these authors have mistaken the species, and that the above accounts ought to be transferred to the Ag. deliciosus, which is still as highly esteemed in modern Italy as it was in ancient Rome. The Ag. xerampelinus is eatable, but it has a strong heavy earthy taste, and is not at all agreeable.

This plant must be very rare in this country, as it is unnoticed by any of our botanists. It was first found by my daughter in the Red Rock plantations at Edgbaston, several growing together of different ages and sizes, in a dry soil, where either a larch or a fir tree had been cut down 4 years before. A few days afterwards we found it again in company with Mr. Stackhouse, but none of our specimens were found with either curtain or ring. The specimens first gathered afforded a milky juice in greater abundance than I had ever seen in any other species, but these the next day shewed no signs of milk, neither were those gathered a few days afterwards on the same spot, at all lactescent. This first taught me that that circumstance could not be relied on as a specific distinction. It is described and figured by Clusius as having been involved in a wrapper or volva, when young and about the size and shape of an egg. The curtain, and its remains on the stem in form of a broad permanent ring, are also noticed by the authors referred to above, so that notwithstanding the defect of these parts in our specimens, there can be no doubt of their existence in others.

Ag. cæsarius. SCHÆFFER, and Bot. arr. *ed.* ii. Red Rock plantations, Edgbaston, 6th July, 1791; and in Sept. 1793. Fir plantations, Tettenhall, Staffordshire, amongst moss.
July, 1792.

* Var. 2. Pileus rich dark reddish brown; stem brown red. Mr. STACKHOUSE.

* Var. 3. Pileus and stem golden brown. Mr. STACKHOUSE.

* Var. 4. Pileus rich red purple: stem dusky gold colour.

Bolt. 14.

* Var. 5. Pileus rich red brown, stem pinky.

Schæff. 214. 215, *a proliferous variation.—Schæff.* 219, *and* 254, *are other varieties of this species, but I have no evidence that they have yet been found in this island.*

Gills fixed, not crowded, strong, fleshy, brittle, serrated on the edge with a brownish colour.
Pileus globular, bloomy purple, clothy to the touch, 3 inches diameter. *Flesh* thick, brittle, white.
Stem solid, but spongy, 3 inches long, 1 inch diameter, dusky gold colour, brittle, pale yellow within. Bolton.

Var. 6. Gills pale buff: pileus peach bloom colour, convex when young, dimpled when full grown: stem pale yellow with a pinky tinge.
Gills fixed, numerous, pale buff, 8 in a set.
Pileus regularly convex, paler and turned down at the edge, from $2\frac{1}{2}$ to 5 inches over, hollowed a little when old. *Flesh* white. *Curtain* yellowish white, tough, leaving a permanent broad ring on the stem.
Stem solid, but pithy, yellowish white or pinky, cylindrical, 3 to 5 inches high, $\frac{1}{2}$ inch or more in diameter.

On the stump of a fir or a larch, in the Red Rock plantation, Edgbaston; in clusters. 25th Sept. 1793.

Maggots very soon excavate the pithy central part of the stem, forming an irregular hollow.

The above are the most remarkable varieties of this very beautiful and splendid Agaric. Mr. Woodward has noticed that when discharging their seeds the edges of the gills have rather a fringed than a serrated appearance. Mr. Stackhouse always found the gills of a bright gold colour. *Pileus* of various tints, from reddish purple to rich brownish yellow; flat, often depressed in the centre, edge turned down; clothy. *Stem* thick, large, clothy to the feel, purple. Often found in clusters. This gentleman discovered and sent me three beautiful drawings of the plant prior to its appearance in any English publication. *Pileus* from 2 to 5 inches over, deep saffron colour, blended with purple tints, but often of a red brown and purplish. *Gills* constantly yellow, rather broad and full. *Stem* thick, from 1 to 4 inches long. Major Velley.

Ag. xerampelinus. Schæff. [Fir plantations near Bath; fir woods at Clowance, Cornwall. Mr. Stackhouse.—Major Velley.—Pine grove, Ditchingham. Mr. Woodward.] Aug.

*Ag. Gills yellow: pileus olive green, dotted, convex: stem pale rose colour. oliva'ceus.

Schæff. 204.

Gills fixed, golden yellow, in pairs, fleshy, long one sometimes splitting.
Pileus olive green, dotted, convex, 3 to 4 inches over, edge turned up when old.
Stem solid, pale rose red, cylindrical, 2 inches high, $\frac{3}{4}$ inch diameter. *Flesh* white. Schæff.

Ag. olivaceus. Schæff. Found by Dr. Sibthorpe in Shotover plantations, Oxfordshire. Oct.
Possibly another variety of the Ag. xerampelinus.

(6) GILLS grey.

littore'us. AG. Gills reddish grey : pileus yellow brown : stem white.

GILLS fixed, reddish grey, fleshy, 4 in a set.
PILEUS yellow brown, convex, edge rather turned in, $1\frac{1}{4}$ inch over.
STEM solid white, 1 inch long, thick as a goose quill. *Ring* permanent.

On the green sward adjoining to the sea shore at Teignmouth. 6th Oct. 1792.

semiluna'tus. AG. Gills light grey brown, broad: pileus very dark brown, convex, the edge turned downwards and inwards; stem black.

GILLS fixed, light grey brown, 4 in a set, broad, crumpled.
PILEUS dark blackish brown, convex, but the edges arched inwards so that a section presents the shape of a crescent, near $\frac{1}{2}$ an inch in diameter.
STEM solid; (but the drawing which I have seen of the plant not quite decisive on that point,) black, very light grey within, 1 to $1\frac{1}{2}$ inch high, thinner than a swallow's quill.

In the Earl of Aylesford's Park at Packington, Warwickshire. Autumn.

III. SOLID and LOOSE

(1) GILLS white.

bulbo'sus. AG. (SCHÆFF.) Gills white, irregular: pileus convex. white : stem cylindrical, white.

Bull. 364—*Schæff.* 241—*Bolt.* 48—*Sowerby* 130—*Battar.* 6. *A.*

GILLS loose, white, or watery white, very numerous, irregular, but mostly in pairs, the short ones very unequal in length, and sometimes not present.
PILEUS white, at first nearly semi-globular, cracking across as it expands further; sometimes fringed at the edge with the remains of the curtain; smooth, 4 or 5 inches over. *Flesh* white, spongy, very thick.
STEM solid, irregularly hollow with age, white, cylindrical,

smooth, rarely quite straight, 4 inches high, ½ inch or more in diameter. *Ring* permanent, broad, white.

This is one of those Agarics which possesses all the parts belonging to the Genus, and being on a larger scale, is well fitted for instructing the learner to understand them. In its embryo state it is enclosed in a wrapper, and is equal in size to a large pullet's egg. If this be cut through vertically, the section brings to view the gills, the pileus, the stem as yet imperfectly formed, and the curtain extending from the stem to the edge of the pileus, the remnants of which in a more advanced state of growth, are sometimes observable fringing the edge of the pileus, and always forming a broad ring round the upper part of the stem. A good drawing of it in its egg-state may be seen in Bulliard, pl. 364. A.—Also see our plate 19.

It is subject to several other trifling variations:

1.—Centre bossed surface very viscid, changing to pale ash-colour. This happens principally in the Autumn.

2.—Proliferous; another smaller one of the same growing on the pileus of a larger plant. This I have seen happen when growing in the rank soil of a hot-bed in the middle of summer.

Ag. bulbosus. Schæff. *Ag. ovoides albus.* Bull. *Ag. vernalis.* Bolt. It may be found from spring to the end of autumn in rich soil. Not unfrequent in gardens, particularly on the sides and the base of hot-beds. I have seen it on a mushroom bed with the Ag. campestris. There are still other varieties figured in plate 577 of Bulliard's Agarics, and also in plate 597.

* Var. 2. Pileus dusky mouse, set with warts of rather a paler colour.

Bull. 593, *also the plate without a number, named Ag. solitarius—Bolt.* 47.

Gills 4 in a set, but irregular. *Stem* 4 or 5 inches high; the curtain remaining on it. BOLT.

Ag. verrucosus. BOLT. but none of his synonyms.

In woods about the roots of trees, but rare. In the Shroggs opposite Birks Hall. BOLT.

* Var. 3. Pileus scarlet, with white blotches, the fragments of the inner wrapper.

Bolt. 46.

Gills loose, 4 in a set. *Pileus* convex, smooth. *Flesh* thick, white, brittle. *Stem* firm, solid, brittle, cylindrical, white. *Curtain* white, forming a permanent ring. BOLTON.

Ag. nobilis. Bolt. In a plantation at Mill's Bridge near Huddersfield.

Var. 4. Pileus scurfy : seem hardly 2 inches high.

In pastures. Autumn.

confer′tus. AG. (BOLT.) Gills brownish white, thin, uniform ; pileus white, conical, cottony : stem white, tapering upwards.

Bolt. 18—*(Not. Bull. Ag. digitaliformis, for that has a hollow stem.)*

GILLS loose, uniform, numerous, thin and delicate, white, with a faint tinge of pale brown.

PILEUS conical, pointed, white, yellowish brown at the apex, smooth, light, cottony ; withers in decay, from $\frac{1}{2}$ to 1 inch in diameter at bottom, and as much in height.

STEM solid, white, gently tapering upwards, 2 inches high, thick as a swallow's quill. *Curtain* white, very evanescent. BOLTON.

Ag. confertus. Bolt. Amongst bark in hot-houses. Nov. 1785.

creta′ceus. AG. Gills white, pileus white, convex or widely conical, tufted ; stem white, club-shaped downwards.

Sowerby 2, *right hand and lower figures*—*Bull.* 374.

GILLS loose and distant from the stem, white, 4 in a set.

PILEUS chalky white, tufted with cottony hairs, 3 to 4 inches over.

STEM white, pithy, club-shaped, 3 to 4 inches high, $\frac{1}{4}$ inch diameter upwards ; near $\frac{1}{2}$ an inch below. *Ring* permanent.

Ag. cepæstipes. Sowerby, see Ag. luteus ; but it seems much more closely allied to the Ag. confertus of Bolton, and I think they will prove to be the same species.

On the bark beds of hot-houses.

al′bus. * AG. (BOLT.) Gills white, numerous, 4 in a set : pileus white, bluntly conical, brown at the top : stem white, tapering upwards.

Bolt. 153—*(Schæff. 256, is a variety with gills in pairs and pileus flat at the top.)*

GILLS loose, thin, pliable.

PILEUS smooth like vellum, milk white, 1 $\frac{1}{2}$ inch to the apex of the cone. *Flesh* white, thin.
STEM solid, pure white within and without, largest at the bottom, decreasing gradually upwards, splits into fibres; 5 inches high, $\frac{1}{2}$ inch diameter at the bottom, $\frac{1}{4}$ at the top. BOLT.

Ag. albus. Schæff. and Bolt. Sheep croft at Stannary near Halifax, and elsewhere in sheep pastures. Aug.

* Var. 2. Gills few: pileus wholly white.

Bull. 256—*Bolt.* 155.

GILLS loose, white, soft, few, 4 in a set.
PILEUS convex, or rather bluntly conical, white, thin, $\frac{1}{2}$ to 1 inch over.
STEM solid, white, thick as a crow quill, but much thicker downwards, where it is sometimes tinged with red; 1$\frac{1}{2}$ to 2 $\frac{1}{2}$ inches high. BOLTON.

Ag. alumnus. Bolt. *Ag. tuberosus.* Bull. On old plants of Ag. integer and other species of Fungi, but rare.

AG. Gills pure white, numerous, 2 or 4 in a set: pileus like tarnished copper, glossy, bluntly conical: stem brownish white, tapering upwards. splen'dens.

GILLS loose, very white, very numerous, thin, and tender, throwing out an abundance of dust-coloured seeds from the edges, and then changing to a pinky white.
PILEUS colour of tarnished copper, with a metallic lustre, beautifully glossy, scarcely viscid, apparently streaked or fibrous like smoothly combed hair, smooth to the touch, bluntly conical, edge parallel to the stem, from 3 to 7 inches over. *Flesh* very white, tender and spongy, cracking when fully expanded.
STEM solid, white, with longitudinal pale brown rising lines, regularly tapering upwards, 4 to 6 inches high, near an inch diameter at bottom and half as much at top. *Flesh* tender, juicy, spongy.

This must be a very rare species, as its size and the metallic splendour of its pileus cannot fail to attract the eye, and yet there does not appear to be any figure of it.

On a rotten alder stump by the side of the pool in Edgbaston Park. Also close to the bottom of an oak stump, at a distance from water. 26th July, 1792.

* AG. (RELH.) Gills white, few, 4 in a set: pileus brownish, bluntly conical: stem brown, tapering upwards: root very long. radica'tus.

Sowerby 48—*Bull.* 232 *and* 515.

GILLS loose, white, few, distant, 4 in a set.

PILEUS brownish, or dirty white, rather bell-shaped, not fleshy, almost pellucid, edge rather bent in, but with age turning up, 3 to 4 inches over, or more.

STEM solid, rather woody, 4 to 6 inches high, thick as a goose quill, gradually thickening from the pileus down to the ground, then penetrating the earth in form of a long root tapering downwards. RELHAN *n.* 1040. *Stem* covered with a thick down, of a reddish brown colour; 5 or 6 inches high, gradually increasing in thickness to the ground, and then tapering to a spindle-shaped root which penetrates deep into the earth. I raised it to more than the length of the stem above ground without obtaining the whole root. *Pileus* about 4 inches over, pale brown or dirty white, almost transparent, being absolutely without flesh: the edge rather bent in. *Gills* few, white, broad, 4 in a set, none of them reaching the stem. Upon comparing the description of Mr. Relhan with the above, which was drawn up some time before the publication of his supplement, it cannot be doubted but the plants are the same. Bulliard's plate 232 agrees, except that the pileus is described as downy, and the stem is longitudinally striated; but as from its woody substance it shrinks and somewhat twists in drying, this appearance in the figure may be occasioned by that circumstance. Mr. WOODWARD.

Ag. longipes. Bull. Solitary; in the margins of corn-fields at Mettingham, and Homersfield, Suffolk; on a strong clayey soil. Mr. WOODWARD. Also a good drawing and description sent me by Mr. Stackhouse, but without a place of growth.

* Var. 2. Stem not 2 inches high, swelling out to the size of a finger; root 14 inches long, and large in proportion. RELHAN. suppl. ii. p. 25.

Pastures and plantations. Sept.

or′cades. AG. (BOLT.) Gills brownish watery white, 2 or 4 in a set: pileus pale brown, convex, irregular: stem whitish, browner with age, very tough, rarely central.

Bull. 144 *; but the plate has too much the appearance of a finished smoothness, and is too highly and too uniformly coloured. There is no characteristic drawing extant.—Battar.* 21. *E. gives a good idea of it in its more advan-*

ced state; but I know that to be a very different plant, and as such, shall refer to it in its proper place.

GILLS loose, (but the part attached to the pileus juts up very close to the stem, so as to give them almost the appearance of being fixed) watery brownish white, 2 or 4 in a set, the small ones often very minute, and the large ones sometimes splitting at the outer end; not numerous, rather broad for the size of the plant; frequently connected to the pileus by ligaments.

PILEUS pale buffy brown, convex, irregular, a sudden depression of the border at some distance from the centre, often giving the appearance of a large rounded boss in the middle; central colour generally deeper, 1 inch to 1¾ over; edge turning up with age.

STEM solid, white, changing to watery brown, cylindrical, but thicker and flattened just under the pileus, very tough, mostly crooked, twisted when dry, rarely central, 1½ inch high, thick as a crow quill.

RAY *Syn.* 6. 27. *Ag. pratensis.* 25. HUDS. *Ag. coriaceus.* 12. LIGHTFOOT. *Ag. pseudomouceron.* BULL. But neither of these names could be preserved, having been, and not improperly, previously applied to other species.

Edgbaston, hedge banks, pastures, in small or large patches, particularly in fairy rings. Abounds in upland pastures, and sheep commons. Mr. STACKHOUSE. June—Oct.

Var. 2. Gills cream colour: pileus buff: stem mealy.

Pastures, Edgbaston. 20th May, 1792.

Sometimes the pileus is as much as 3 inches in diameter.

In fairy rings on the ground sloping down to Hockley Pool, and on a piece of grass land sloping to the South in the pleasure ground of Mr. Boulton, at Soho. 2d June, 1792.

*Var. 3. Pileus yellow brown, more fleshy, more regularly convex. Mr. WOODWARD.

Bolt. 151.

Mr. Woodward observes that this variety is found in groves; that the stem retains its usual colour and toughness. He says also that this species has a much higher flavour than the common mushroom, but probably from its leathery nature is indigestible, except in the form of powder, in which it is admirable. I have seen the pileus and gills of this Agaric very brittle and tender when fully saturated with moisture in rainy seasons, and in that state it is sufficiently digestible. It is not, as Mr. Lightfoot has supposed, the *Mouceron* of the French, though often used in France instead of that. Mr. Bulliard informs us that it is used in ragoûts, that its flavour is equal to that of the true Mouceron, but that it is more tough.

I am satisfied that the bare and brown, or highly cloathed and verdant circles, in pasture fields, called *Fairy Rings*, are caused by the growth of this Agaric. We have many of them in Edgbaston Park, on the side of a field sloping to the South West, of various sizes; but the largest, which is 18 feet diameter, and about as many inches broad in the periphery where the Agarics grow, has existed for some years on the slope of an adjoining pasture field, facing the South. The soil is thin, on a gravelly bottom. The larger circles are seldom compleat. The large one just now described is more than a semi-circle, but this phenomenon is not strictly limited to a circular figure. Where the ring is brown and almost bare, upon digging up the soil to the depth of about 2 inches, the spawn of the Fungus will be found, of a greyish white colour, but where the grass has again grown green and rank, I never found any of the spawn existing. A similar mode of growth takes place in some of the crustaceus Lichens, particularly in the L. *centrifugus.*

As this Agaric may be procured plentifully, and as its fine flavour will probably soon introduce it to our tables, particularly in catsups and in powder, forms in which its toughness is no objection to its use; I imagine it may be of some consequence to guard against errors in those who gather it, or in those who direct it gathered; and as much confusion and many mistakes have hitherto existed amongst authors on the subject of this very common plant, I shall now, in addition to the particular description given of it above, subjoin a list of the figures erroneously quoted as representing it, pointing out wherein they differ from it.

Ag. mouceron. Bull. 142. This is very unlike our plant, it has a very thick and fleshy pileus, its gills are extremely narrow and numerous, and its stem is thick and short. Not to mention that the gills too are fixed to the stem.

Ag. lucocephalus. Bull. 428. 1. This is a much larger plant, has a fixed gill, a much thicker, and a brittle stem, but the toughness of the stem in our plant is such as is nearly alone sufficient to distinguish it.

Battar. 22. C. Not to mention other marks of difference, this has a *hollow* stem.

Ag. melleus. Schæff. 45. This has a fixed gill, and a hollow stem.

Ag. pallidus. Schæff. 50. This is indeed very unlike our plant; it has a thick fleshy pileus, a thick stem, and decurrent gills.

Ag. farinulentus. Schæff. 205. This has a hollow stem, a powdered pileus, and a dirty brown gill.

Ag. collinus. Schæff. 220. This has a hollow stem, otherwise it is not much unlike it; but the stem is too thick for our plant, and the boss upon the pileus is very peculiar.

Ag. niveus. Schæff. 232. Differs very widely indeed, having a pileus concave in the centre, a hollow stem, and a very decurrent gill.

Ag. præaltus. Fl. dan. 830. 1. This figure has some general resemblance, and the decurrent gills may be only apparently so from the turning up of the pileus in the advanced age of the plant. The author however refers to Battar. p. 46. t. 21. fig. F. and we here find that this is a very large species indeed, well agreeing with the trivial name *præaltus*, but the figure gives no such idea.

I have referred to Ray *Syn.* p. 6. *n.* 27, for our plant, but a very respectable authority has lately given this species of Ray to the *Ag. sordidus.* I confess that the short character given by Mr. Ray is so imperfect as to admit of various applications, though his usual sagacity did not desert him when he mentioned its leathery texture. But this alone would not have been sufficient. Fortunately he subjoins an English name, *Scotch bonnets*, from which, those who are intimately acquainted with the habit of the fairy-ring Agaric, will immediately acknowledge it.

*AG. (BOLT.) Gills greyish white, 4 in a set: pileus convex, brown mouse: stem dark grey, tapering upwards: wrapper permanent. pulvi'natus.

Bolt. 49; *(but none of his synonyms.)*

GILLS loose, the 2 smaller series lopped.

PILEUS when fully expanded flatted at the top like a cushion; edge strongly scored: 3 or 4 inches over. *Flesh* white, spongy.

STEM solid, dark grey, nearly cylindrical but thicker at the bottom, which is enclosed in a permanent wrapper; 3 to 4 inches high, near $\frac{1}{2}$ an inch diameter. BOLTON. The colour of the gills not mentioned in the description, but if grey white as represented in the figure, it cannot be the same plant as Mr. Bulliard's Ag. volvaceus, pl. 262, which has white gills when young, changing to salmon colour when in maturity.

Ag. pulvinatus. Bolt. Woods and moist shady places about Halifax, but rare. Sept.

*AG. (BULL.) Gills yellowish white, 4 in a set: pileus yellowish brown, convex, not fully circular: stem bent horizontally. horizon'talis.

Bull. 324.

GILLS loose, contiguous to the stem but not fixed to it, yellowish white, few, rounded at the edge, 4 in a set, the smaller series very minute.

PILEUS convex, yellowish brown, almost semi-orbicular, smooth, shining, 1 inch broad.

STEM solid, little more than ½ an inch long, central, but immediately bent so as to be parallel to the pileus, and inserted into the crevices of the bark on which it grows; in thickness equal to a swallow's quill. I have frequently been deceived in gathering this plant, the stem from its mode of growth, not being easily seen, I have supposed it to be a dimidiated Agaric until it was pulled. Mr. WOODWARD.

Ag. horizontalis. Bull. On old trees at Mettingham, and elsewhere, near Bungay. Mr. WOODWARD.

cla′vus. AG. (LINN.) Gills white, in pairs: pileus with a dimple in the centre: stem very long and slender: root very long.

Schæff. 59. *very good, but rather large.—Bull.* 148, *B. C. D.—A. is another species.—Vaill.* xi. 19. 19. 20.—*Bolt.* 89. *B.*

GILLS loose, in pairs, white, about 20 of each sort.

PILEUS pale orange, convex, with a dimple in the centre, from 1-10th to 3-10ths of an inch over.

STEM solid, pale orange, semi-transparent, from ¾ to 1 inch high, not thicker than a pin. *Root* very long.

This is a Linnæan species, but I omit the character in the Fl. Suec. as it is evident that the author had confounded two different plants together. In the Sp. pl. ed. 3. the erroneous part of the reference to *Vaill. Par.* is thrown out, but the whole of the error is not yet removed.

Ray *Syn.* 9. 44, has been supposed to be this plant, but the conical pileus does not justify that opinion.

Ag. clavus. Schæff. Bull. Bolt. Common amongst moss and old leaves. July.

Var. 2. Pileus and stem pinky white.

Bull. 569. 2.

GILLS loose, white, in pairs.

PILEUS flat, pinky white, near ½ an inch diameter.

STEM solid, pinky towards the bottom, 2 inches high or more, not thicker than a strong bristle. *Root* very long.

Ag. epiphylleus. Bull. On dead leaves in Lord Aylesford's Park at Packington. Autumn.

Ag. Gills white, numerous, irregular: pileus rich reddish yellow, gently convex: stem brown yellow. avella'neus.

Gills loose, white, with something of a yellowish cast; thin, numerous, 3 or 4 in a set, and often several long ones together.

Pileus the colour of a fresh gathered ripe hazel nut; gently convex, rather bossed, thin at the edge, 2 ½ inches over. *Flesh* whitish, with a tinge of the nut colour.

Stem solid, gently tapering upwards, brown yellow, flecked with a scurf of a redder colour; 4 inches high, near ½ an inch diameter.

This species I believe was first found in England about 3 years ago, by Mr. Knapp, who then sent me an account of it, observing that it gave a greasy appearance to the paper in which he had preserved it. On making further enquiries concerning it, he favoured me in March last with a drawing made from his dried specimen, and also the following observations—*Gills* white. *Pileus* nearly flat, of a nut colour, with an extremely fine woolliness. *Stem* tawny, rather scored, not hollow. Mr. Knapp.—I imagine it is a rare plant, as Mr. Knapp has not found it since, though its size and the length of its stem, as well as the elegance of its appearance, render it sufficiently observable. A single specimen was gathered in this neighbourhood, and brought to me this morning.

Shenley, Bucks. Mr. Knapp. On the West side of Mosely Common, near Birmingham. 6th July, 1792.

*Ag. (Linn.) Gills yellowish white: pileus yellow, convex, hollow in the centre: stem yellow, thickish, smooth; juice hollow. Geor'gii.

Ag. stipitatus, pileo flavo convexo, lamellis albis. *Fl. suec.*

Clus. ii. 264. 2—*J. B.* iii. 824. 2—*Park.* 1317. 4—*Sterb.* 4. *C. (not.* 11. 3.)

Gills loose. *Pileus* brimstone coloured, 4 inches over. *Stem* solid, irregularly hollow with age. Linn. Clus. Haller. *Pileus* striated and hairy at the edge, white, changing to yellowish, and reddish yellow when old; but the gills do not lose their whiteness. *Stem* short, thick, woolly. Gleditsch. If wounded bleeds plentifully with a yellow juice.

This species is introduced on the authority of Mr. Hudson and Mr. Relhan. I cannot collect the exact description of the gills from any of the authors who have mentioned it, but from

the general structure of the plant it is probable that they are loose. Ray. *Syn* p. 2. *n.* 2.
Woods and pastures. Sept.

* Var. 2.

Mr. STACKHOUSE had repeatedly mentioned to me a large esculent Agaric found on the sea-coast in Cornwall, which is, I believe, a monstrous variety of this species. Its whole habit is very large, the button as big as a potatoe, the expanded pileus 18 inches over, the stem as thick as a man's wrist, the gills very pale ; the *curtain* as tough and as thick as a piece of leather, the juice yellowish ; the flavour inferior to that of the *Ag. campestris.* And he has very lately informed me that it corresponds with the decription of J. B. hist. iii. p. 824, cited by Linnæus under Ag. *Georgii.* It was probably a plant of this kind, which was mentioned to me by a gentleman of undoubted veracity, as having been gathered some years ago on an old hot-bed in a garden in Birmingham, and weighed 14 pounds.

On the sea coast or commons; Weymouth, Devonshire, and West of Cornwall. Mr. STACKHOUSE.

(2) GILLS brown.

luteo-fus′-cus. AG. Gills yellow brown : pileus dark yellow brown, widely conical, bossed : stem brown.

GILLS loose, yellow brown, 4 in a set.
PILEUS dark yellow brown, convex but peaked in the centre, full 1 inch over, rather powdered, cracked at the edge when old.
STEM solid, brown, paler in the middle, cylindrical, 1 to 1½ inch high.

In the Earl of Aylesford's Park at Packington. Autumn.

collini′tus. *AG. Gills rich ochrey brown : pileus rich yellow brown : stem dirty white ; ring permanent.

Sowerby 9.

GILLS loose, the colour of rusty iron, 4 in a set.
PILEUS tawny brown, rather conical, 4 or 5 inches over.
STEM solid, whitish, nearly cylindrical, 3 to 5 inches high, ½ an inch diameter. *Ring* turned down on the stem.

When young it is enveloped in a veil of gluten, which is durable on the dried specimen, and has a beautiful transparent appearance like isinglass. Sowerby. Peckham Wood. Oct.

* AG. Gills red brown: pileus greenish grey, nearly flat when most expanded. Stem whitish. volva'ceus.

Sowerby 1—*Bull.* 262.

GILLS loose, numerous, red brown, 2 or 4 in a set.
PILEUS greenish, or greyish, convex or widely conical, nearly flat and cracking when fully expanded; 4 or 5 inches over. *Flesh* thin, white.
STEM solid, whitish, nearly cylindrical, 3 to 4 inches high, $\frac{1}{2}$ inch diameter.

Wrapper at the root, grey or greenish. In the bark beds of hot-houses. Mr. RELHAN; and since by Mr. Sowerby on a very rotten stump of a lime tree. Aug.

*AG. (SCHÆFF.) Gills pale brown, uniform: pileus orange brown, rather bossed: stem pale cinnamon, with a permanent wrapper at the root. ba'dius.

Schæff. 245—*Bolt.* 38. 2—*(Mr. Bolton refers to Schæff.* 95, *which possibly may be the same, and also to Schæff.* 211, *which must be a mistake.)*

GILLS loose, uniform, broad, distant, pale cinnamon brown.
PILEUS bright brown inclining to orange, smooth, streaked near the edge, 3 inches over.
STEM solid, hollow with age, pale cinnamon, smooth, tapering upwards, 4 inches high, $\frac{1}{4}$ of an inch diameter, surrounded at its base by a permanent wrapper which splits into 3 lobes. BOLTON.

Ag. trilobus. BOLTON. *Ag. badius.* Schæff. Dry woods about Halifax. Aug.

AG. Gills nearly uniform, blackish brown: pileus cylindrical, channeled, mouse coloured, reddish at top: stem white. canalicula'tus.

GILLS loose, dirty blackish brown, not all of a length, but without any short ones.
PILEUS mouse colour, smooth, reddish at the top, cylindrical, blunt, channeled, 3-8ths of an inch high, not quite so much in diameter.
STEM solid, white, tender and pulpy, $\frac{3}{4}$ of an inch high, thick as a swallow's quill.

Drawing and description from Mr. STACKHOUSE, who attended the progress of the growth in two of these plants, which sprang up in a pot containing an orange tree, in the window of a parlour in Bath. June, 1792.

I have since met with the same plant, growing in the soil in an unfinished house in Birmingham. A parlour floor had been loosely laid with oak planks the preceding year, and on taking them up this plant made its appearance. July.

glandi'ca-lyx. Ag. Gills pale yellowish brown, 4 in a set: pileus dirty mealy white on a pale ground, spreading, peaked: stem pale yellowish brown.

Gills loose, pale yellowish brown; 4 in a set.
Pileus widely conical, pointed, dirty mealy white on a pale brown yellow ground, with a peak in the centre, about $\frac{1}{4}$ of an inch high, much resembling the cup of an acorn.
Stem solid, cylindrical, pale yellowish brown, seldom straight, $\frac{1}{2}$ to 1 inch high, thick as a swallow's quill.

Plantations at Edgbaston on the ground.

cor'neus. Ag. Gills pale buffy brown, 2 or 4 in a set: pileus pale brown: stem brown, crooked.

Gills fixed to a fleshy ring in the pileus, and close adjoining, but not united to the stem; pale brown or buffy, not thick set, strong and rather tough; in pairs or in fours.
Pileus pale brown, convex, flatted, edge turned in, thin; from the size of a pin's head to 1-8th of an inch over.
Stem solid, brown, very much crooked, $\frac{1}{4}$ to $\frac{3}{4}$ of an inch high, sometimes rather scurfy, thick as a small needle, tough, horny when dry.

On the stump of a fir tree which had been fallen, in the Red Rock Plantation, Edgbaston. 11th Aug. 1793.

lycoperdo-noi'des. *Ag. Gills blackish brown: pileus dirty white; globular: stem white, short.

Bull. 166.

Gills loose, brown changing to blackish, few, thick, uniform.
Pileus white changing to dirty brown yellow, globular, from the size of a pea to $\frac{1}{2}$ an inch diameter.
Stem solid, white, cylindrical, $\frac{1}{4}$ to $\frac{1}{2}$ an inch high; thick as a crow or a swallow's quill.

Ag. lycoperdonoides. Bull. Grows on the pileus and gills of other Agarics in a state of decay. Found by Mr. Dickson and Dr. Sibthorpe. Oct.

(3) Gills red.

ru'bens. *Ag. (Bolt.) Gills ruby red, 4 in a set: pileus dark red, gently conical: stem bright-red.

Bull. 202—*Bolt.* 36—*Fl. dan.* 715.

GILLS loose, thin, transparent; when held between the eye and the light, of a glowing ruby colour, regularly 4 in a set.
PILEUS gently conical, fine dark red, cottony to the touch, 1½ inch over.
STEM solid, strong bright red, hard, seldom straight, 4 to 5 inches high, thick as a goose quill. BOLTON.

Ag. coccineus. Bulliard, but not Schæffer 302. M. Bulliard's name is rejected because previously appropriated by Scopoli to another species. Indeed the same reason exists against Mr. Bolton's name, but that the species which Scopoli has called *rubens*, is a variety of Ag. muscarius.

Ag. rubens. Bolt. *Ag. Kermisinus.* Fl. dan. In a wood belonging to Shibden Hall, near Halifax, and not elsewhere. Oct.

*AG. Gills reddish brown, irregular; pileus dead yellow brown, widely conical, very glossy; stem darker. angula'tus.

GILLS loose, reddish brown, angular, irregular, 3 or 4 in a set.
PILEUS dead leaf colour, very glossy and satiny, widely conical, sometimes bossed, 1 inch over in the largest specimens.
STEM solid; dark brown, inclining to black; 2 inches high, thick as a swallow's quill.

Found by Mr. STACKHOUSE at Pendarvis. Aug.

AG. Gills loose, pinky flesh-colour, 4 in a set: pileus pale pink: stem pinky white. auran'tius.

Ag. aurantius. Var. 3. See HOLLOW and FIXED.

AG. (LINN.) Gills pinky, changing to dark liver colour, crowded, irregular: pileus convex, white to brown: stem white, cylindrical: curtain white. campes'-tris.

Var. 1. Pileus smooth, or only a little scaly when old.

Bull. 514—*Bull.* 134—*Fl. dan.* 714—*Bolt.* 45—*Mill. ill. t.* 106—*Lob. ic.* 271—*J. B. hist.* iii. 824—*Gars.* 279. 1 *Sterb.* 1—*Schæff.* 310. 311.

GILLS loose, pinky red, changing to liver colour, in contact but not united with the stem; very thick, set, irregular in disposition, some forked next the stem, some next the edge of the pileus, some at both ends, and generally in that case excluding the intermediate smaller gills.
PILEUS white, changing to brown when old, and becoming

scurfy; regularly convex, fleshy, flatter with age, 2 to 4 inches diameter, liquefying in decay. *Flesh* white.

STEM solid, white, cylindrical, 2 to 3 inches high, ½ inch diameter. *Curtain* white, delicate.

Such is the more common kind, in this part of England, which is so much in request for the table. They differ very much in size; I gathered one, whose pileus measured 9 inches over. The field plants are better for eating than those raised on artificial beds, the flesh of the latter being far less tender.

Ag. stipitatus, pileo convexo squamato albido, lamellis rufis. Fl. Suec. 1203.—Ray *Syn.* p. 2. n. 1. and p. 3. n. 8.

Common Mushroom. Ag. arvensis. Schæff. *Ag. edulis.* Bull. *Ag. campestris.* Bolt. *Ag. campestris.* Fl. dan. In parks and other pastures where the turf has not been ploughed up for many years. Aug. Sept.

Var. 2. Pileus rough and scurfy, or hairy.

Schæff. 33—*Battar.* 7. *A*—*Mich.* 75. 1—*Clus.* 268.

Ag. campestris. Schæff. This seems the more common sort in some parts of Europe.

Var. 3. Pileus beautifully tufted with pencils of brown hair: stem tapering downwards.

Schæff. 33. *f.* 5. 6.

Gives a good idea of this, which with us never expands further; consequently the curtain is very durable.

Ag. campestris. Schæff. Woolhope, Herefordshire. Sept. from Mr. STACKHOUSE.—Rookery, Edgbaston, a single plant. Oct.

Var. 4. Gills whitish, slowly changing to liver colour.

GILLS loose, 4 in a set, numerous, whitish, changing to liver colour.

PILEUS cream colour, 2 to 4 inches over, rather scurfy, nearly semi-globular.

STEM solid, 2 inches high, ½ inch diameter, yellowish white. *Ring* permanent, tough, white.

Edgbaston Park, under large lime trees. 12th Nov. 1794.

OBS. In the more common Mushroom, even in its button state before the rupture of the curtain the gills appear of a pinky red soon changing to a darker liver colour, but in this they were nearly white even for some time after the tearing of the curtain so as to make me doubtful of its species, but at length they changed to the usual colour. This delay was probably occasioned by the slow ripening of the seeds so late in the year.

AG. (BOLT.) Gills pale flesh-colour, 8 in a set, but irregular: pileus brown mouse, convex, rather bossed: stem white, cylindrical. la'tus.

Sowerby 108—*Bull.* 382, *Gills too highly coloured—Bolt.* 2, *but the colouring in my copy neither agreeing with our specimens, nor yet with his own description, which is sufficiently exact.*

GILLS loose, white, when young, changing to a pale flesh colour, numerous, mostly 8 in a set, but the smaller series often absent, and often standing nearer to the edge of the pileus, than the extent of the large ones.

PILEUS brown mouse colour, convex, fleshy, a little bossed, satiny, smooth when young, when fully expanded much wrinkled about the boss, 2 to 5 inches over.

STEM solid white, cylindrical, rather scurfy towards the bottom, spongy and juicy, 2 to 3 inches high, 3-8ths diameter.

Ag. lividus. Bull. *Ag. latus.* Bolt. Edgbaston, on turf. Solitary. July—Sept.

Var. 2. Plant when young inclosed in a wrapper.

Bull. 262.

The presence of the wrapper or Volva and some variation in the tint of the pileus, seem the only circumstances wherein it differs from Bull. pl. 382. pl. 330, of the same author seems only a dwarf plant of the same kind.

Ag. volvaceus. Bull. Found by Mr. Relhan in the tan-pit in Professor Harwood's hot house, at Cambridge.

*AG. Gills brown red: pileus red buff, whitish at the edge, convex: stem white, scurfy. crustulinifor'mis.

Bull. 308 and 546.

GILLS loose, brown red, 4 in a set.

PILEUS red buff, edges whitish, scolloped and waved when full grown, convex, 2 to 4 inches over. *Flesh* white.

STEM solid, white, cylindrical, scurfy, 2 ½ inches high, 1-third of an inch diameter. BULLIARD.

Ag. crustiliniformis. Bull. On the authority of Dr. Sibthorpe, who found it in a copse under Shotover hills, Oxfordshire. Sept.

(4) GILLS buff.

*AG. Gills buff, very broad, 4 in a set: pileus fawn-coloured, convex, mealy: stem chesnut. hinnu'leus.

Sowerby 173—*Bull.* 574, 1, *may be the plant, but it is much larger than ours.*

GILLS loose, buff, very broad, 4 in a set.
PILEUS bright fawn-colour, surface covered with a fine farinaceous substance, which appears under the microscope as mealy tubercles; 1 to 2 inches over.
STEM solid, spongy, dark chesnut colour, striated when old, 1 to 3 inches high, thick as a swan's quill. *Curtain*, its fragments attached to the edge of the pileus and to the stem.

This is an elegant species; the colour of the pileus has furnished its name, although strictly speaking, it is too bright to be called a fawn colour. Major VLLEEY.

Ag. fauve. Bull. Pine plantations on Claverton. Major VELLEY.

lanugino'sus. *AG. Gills brown buff, narrow: pileus nut brown, convex, scurfy: stem nut brown, scored.

Bull. 370.

GILLS loose, brown buff, narrow, in pairs.
PILEUS full nut brown, convex, rough and scurfy, most so when young so as to appear almost hispid; with age turning up; 1 to 1 $\frac{1}{2}$ inch over.
STEM solid, nearly the colour of the pileus, 1 $\frac{1}{2}$ inch high, thick as a raven quill.

Possibly only a variety of Ag. hinnuleus.

Ag. lanuginous. Bull. In Lord Aylesford's Park at Packington. Autumn.

(5) GILLS yellow.

sulca'tus. AG. Gills yellow, 4 in a set, larger ones grooved along the edge: pileus orange, convex, but depressed in the middle: stem solid, yellow, rich brown below.

Bolt. 135—*Bull.* 519. 2.

GILLS loose, yellow, moderately numerous, in contact with the stem but not attached to it, 4 in a set, the larger Gills thick, and grooved along the edge.
PILEUS orange in the middle, yellow towards the edge, convex, but depressed, $\frac{3}{4}$ of an inch to 3 $\frac{1}{2}$ inches over. *Flesh* white.
STEM solid, cylindrical, yellow, velvety, paler upwards, dark rich brown below, $1\frac{1}{2}$ to 2 inches high, 1-8th to 3-8ths diameter.

Ag. nigripes. Bull. *Ag. velutipes.* Bolt. In clusters affixed to rotten wood. Edgbaston. 15th Nov. 1790.

*AG. (BOLT.) Gills yellow, numerous, uniform: pileus yellow, conical, tufted: stem tapering upwards. lu'teus.

Bolt. 50—Sowerby 2, the left hand figures.

Gills loose, thin, tender, delicate.
Pileus a blunt cone, bearing the remains of its wrapper on its surface, in form of little, soft, cottony tufts; edge waved, scolloped, scored when old; 1 ½ inch from the edge to the top.
Stem solid, yellow, tapering upwards, 2 ½ inches high, ¼ diameter at the ring, which is permanent. BOLTON.

Ag. cepæstipes. Sowerby. Amongst the bark in a pine stove. Aug.

Var. 2. Colour of the whole plant a chalky white.

Sowerby 2—Bull. 374.

The general external appearances have induced Mr. Sowerby to consider this as a variety of the Ag. luteus, but though it stands here in conformity to his opinion, I think it must be a distinct plant, and on account of the different colour of the Gills I have entered it more fully in its proper place. See Ag. cretaceus, p. 254.

AG. (SCHÆFF.) Gills yellowish, few uniform: pileus brown yellow, scored, nearly cylindrical: stem white. minu'tulus.

Schæff. 308.

Gills loose, light brown yellow.
Pileus bell-shaped, 1-10th of an inch high, scored, brown yellow.
Stem solid, white, or brownish, cylindrical, rather bent, very slender, ½ to 1 inch high.

Grows in patches on the ground, but the plants grow singly. In that and in its general aspect, it is extremely like the var. 2, of Ag. turbinatus; and I know that plant has repeatedly been referred to Schæff. 308, but it differs in having "Gills white, in pairs; stem solid."

Ag. minutulus. Schæff. In pastures, in Autumn. DICKSON, fasc. 1. p. 16. [In Lord Aylesford's park at Packington.]

AG. Gills loose, yellow, 2, 3 or 4 in a set: pileus and stem pinky. auran'tius.

Ag. aurantius. Var. 4. See HOLLOW and FIXED.

(6) GILLS grey.

du'rus. *AG. (BOLT.) Gills loose, pale grey, very numerous, 4 in a set: pileus pale dusky buff, convex: stem pale whitish buff.

Bull. 428. 2—*Bolt*. 67. 1.

GILLS loose, very numerous, thin, broad.
PILEUS pale dusky yellow, feels like vellum, 2 to 4 inches over.
STEM solid, cylindrical, 2 to 3 inches high, 2-8ths to 3-8ths diameter. *Curtain* white, evanescent. The substance of the whole plant very hard and brittle. BOLTON.

Ag. cinerescens. Bull. *Ag. durus*. Bolt. Sometimes solitary, generally in clusters; in woods. Autumn. BULLIARD.

mammo'sus. *AG. (LINN.) Gills yellow grey, 4 in a set: pileus convex, pointed in the centre, grey brown: stem grey brown, cylindrical.

Bolt. 69—*Buxb. cent*. 4. *t*. 21. *f*. 1. 2.

Gills loose, yellow grey, convex, scolloped. *Pileus* grey or brownish, convex, pointed. *Stem* scored, very long, cylindrical, naked. LINN.

GILLS loose, pale dusky grey with a tinge of flesh colour; very broad, waved, and the long ones scolloped at the edge.
PILEUS dusky grey with a tinge of reddish brown, surface clothy, 3 inches over, central projection like a nipple.
STEM solid, grey brown, paler below, hard firm, cylindrical, 4 or 5 inches high, ½ inch diameter. BOLT.

Ag. stipitatus, pileo convexo acuminato griseo, lemellis convexis griseis crenatis. LINN.

Ag. mammosus. Bolt. In woods. Sept.

lu'ridus. *AG. (BOLT. Gills blue grey, numerous, uniform: pileus dirty olive brown, slimy, bluntly conical, edge irregularly lobed: stem dirty olive brown, bent.

Bolt. 25.

GILLS not touching the stem, sordid greyish blue, uniform, very numerous, close set, broad, deliquescent.
PILEUS dusky greyish hue with a cast of dirty olive, quite smooth, covered with a thick slime; edge with very

unequal lobes and gashes, 2½ inches across the base, and as much in height.

STEM solid, hard, dirty yellowish brown, bent in various directions, 4 inches high, ½ inch diameter. **BOLTON**, who in a letter to me remarks, that it is slow of growth, and of much longer duration than any of the deliquescent species which had fallen under his observation.

Ag. luridus. Bolt. On Gibbet Hill, and other places near Halifax.

IV. HOLLOW and DECURRENT.

(1) GILLS white.

*AG. (SCHÆFF.) Gills white, in pairs: pileus white, viscid, flattish: stem white, cylindrical. niv'eus.

Schæff. 232, *not good.* (*Description at Ind. p.* 57, *very good.*)—*Sowerby* 97.

GILLS decurrent, glossy white, few, in pairs.

PILEUS at first convex, afterwards flattened, and often depressed in the centre; viscid, brittle, not fleshy.

STEM hollow, white, 1 to 2½ inches high, thick as a goose quill. Major **VELLEY**. I am obliged to the gentleman just mentioned for the knowledge of this plant being indigenous, for most of the preceding characters, and for the following observations:—The pileus is so little fleshy, that when dry, it is sufficiently transparent to exhibit the form of the gills. The decurrence of the longer gills, which is invariable, separates it from the Ag. coriaceus of Lightfoot, (Ag. orcades) the gills of which, as he observes, do not touch the stem. It is much less fleshy than the Ag. eburneus. It cannot be Ray Syn. p. 7. n. 31, as Sibthorpe supposes, because Ray's reference to J. B. iii. 826, clearly shews that this plant is the Ag. plumbeus. Not Sowerby 32.

In a small clump of firs, near the middle of Claverton Down; Bath.

AG. Gills watery white, few, broad: pileus very light brown: convex: stem white. cespito'sus.

Bolt. 41. *C.*

GILLS slightly decurrent, watery white, 2 or 4 in a set, few, broad.

PILEUS light brown with a yellowish tinge, convex, flat, and sometimes turning up with age; ½ to 1½ inch over; extremely thin, and with the appearance of streaks from the gills being seen through it.

STEM hollow, white, from $\frac{3}{4}$ to $1\frac{1}{4}$ inch high, thick as a crow quill.

Whole plant semitransparent.

Ag. cespitosus. Bolt. In Packington Park.

(2) GILLS red.

farina'ceus. AG. (HUDS.) Gills dilute pink, edges scolloped, 4 in a set: pileus pinky brown, bossed: stem very pale pinky brown, thick at the top.

Schæff. 13—*Batsch.* 100—*Sowerby* 208.

GILLS a little decurrent in the young and smaller plants, greatly so in the older and larger ones, few, thick, very dilute pink, or as if powdered with dull white upon a pink ground, scolloped at the edge, regularly 4 in a set.

PILEUS pale pinky brown, deeper coloured and bossed in the centre; $\frac{1}{2}$ to 1 inch over.

STEM hollow, very pale brown, with a pinky tinge, shining, thickest at the top, 4 inches high, size of a crow quill.

This plant is always distinguishable by the small number of *Gills*, which are sprinkled with a mealy powder. *Stem* slender, 3 or 4 inches high. *Pileus* 1 to 2 inches over, varying in colour, but usually more or less purple, often very irregular in shape, and occasioning waves in the gills. Common. Mr. WOODWARD.

The whole plant sometimes mealy. Dr. Sibthorpe has referred Ray Syn. p. 5. n. 23, to this species: but Dillenius's description is that of a much larger plant.

Ag. subcarneus. Batsch. *Ag. laccatus.* Schæff. In the grass under pine trees at Bath, in abundance. On Comb Down. Major VELLEY.

Var. 2. Gills in pairs: stem thickest at the bottom when young.

GILLS, about 20 long ones.

PILEUS $\frac{1}{4}$ to $\frac{1}{2}$ of an inch over, convex, turning up with age.

STEM thickest downwards in the young, thickest upwards in the old plants, $1\frac{1}{2}$ to 2 inches high. The whole plant inside and outside of a pinky red.

Plantations at Tettenhall, Staffordshire. July.

rubeo'larius. AG. Gills pale pink, deep red at the edge: pileus pale pink, cylindro-conical: stem pink.

GILLS decurrent, pale pink with deep red edges; broad.

PILEUS pale watery pink, cylindrical but rounded at the top, 1-10th of an inch high.

STEM hollow, pink, weak, 1 inch high, not thicker than a strong bristle.

On rotten sticks in the park at Packington.

AG. (BOLT.) Gills pale rose, broad, tough, wide asunder, 4 in a set: pileus pale brown, bossed, irregular, sloping: stem whitish, cylindrical, flattened and larger at the top. irregula′ris.

Bolt. 13.

GILLS decurrent, of a delicate blush colour, tough, broad, not numerous, 4 in a set.

PILEUS pale brown, or whitish, bossed, plaited, crumpled, irregular, set sloping on the stem, about 2 inches over.

STEM hollow, nearly white, cylindrical, but larger and flattened at the setting on of the pileus, 2 inches high, ¼ inch diameter.

Specimen, description, and an excellent drawing from Mr. STACKHOUSE.

Ag. irregularis. Bolt. Ditches under trees, not uncommon. Beacon Hill, Bath. Woolhope, Herefordshire. Mr. STACKHOUSE.

(3) GILLS yellow.

AG. Gills orange, in pairs, about 20 pair: pileus orange, dimpled: stem orange. par′vus.

Sowerby 45—*Bull.* 519. 1. *B. C.*

GILLS decurrent, deep orange, paler towards the stem, broad for the size of the plant, about 20 large ones and a very small one between each.

PILEUS orange, centre depressed, edge turned down, 1-3d or ¼ of an inch over.

STEM hollow, orange, ½ or ¾ of an inch high, not thicker than a pin.

The whole plant very viscid and semitransparent. M. Bulliard has called this plant *corticalis,* and figured it as growing on the bark of a tree, but as that is not its most common situation, his name is not very proper.

Pastures, Edgbaston, amongst short grass and moss, common. 27th Aug. 1791.

*Var. 2. Gills pale orange, 4 in a set; pileus orange, the central dimple bluish purple: stem deep orange below, paler above.

Battar. 28. Y—*very like Bull.* 186, *but that has a solid stem.*

GILLS decurrent, whitish orange, not numerous, broad, 4 in a set.

Pileus 1 line to $\frac{1}{2}$ inch over; in the small ones bell-shaped, with plane margins; in larger convex, always dimpled in the centre; the dimple bluish purple, which colour runs down part of the stem, and may be seen through the gills if held up to a strong light; the margin waved and plaited with great elegance, extended, thin, varying, of a pale or deep orange colour.

Stem long, slender, hollow, the lower half deep orange as the pileus, upper pale as the gills, smooth and shining, cottony at the base. The whole plant shining and somewhat transparent, shaped like a trumpet.

Pine Grove at Kirby, on moss. Mr. Woodward.

umbilica'tus. Ag. (Bull.) Gills deep buff, 4 in a set, large ones very broad: pileus buff, hollow in the centre: stem reddish buff, cylindrical.

Bull. 411. 2, (*paler than our specimens.*)

Gills a little decurrent, deep red buff, 4 in a set, large ones about 25, much broader than the other, often cloven, smallest series very imperfect, sometimes wanting.

Pileus buff, hollow in the centre, tearing with age, 1 to 3 inches over.

Stem hollow, cylindrical, reddish buff, 2 inches high, thick as a goose or swan's quill.

Sometimes the pileus is of an orange, and the stem of a bright yellow colour. The flesh yellow, but Mr. Stackhouse has observed it to turn green when exposed to the air.

Ag. umbilicatus. Bull. Pastures, Edgbaston, and in Packington Park. 11th Oct. 1790.

pri'mula. Ag. Gills primrose-colour, 4 in a set: pileus, centre brown red, border yellow; stem yellow, tapering downwards.

Gills decurrent, pale yellow with a greenish cast, 4 in a set, regular.

Pileus convex, uneven, darkish brown red in the centre, yellow at the edges, $\frac{3}{4}$ of an inch over.

Stem hollow, yellow, scurfy, often crooked, greatly tapering downwards, 4 inches long, thick as a goose quill in the middle part.

I never found this singular Agaric but once, and then it grew in clusters.

Plantations, Edgbaston. 15th Oct. 1790.

V. HOLLOW and FIXED.

(1) GILLS white.

AG. Gills white, numerous, 4 in a set: pileus white, smooth, convex, buffy in the centre: stem white, thickest downwards. nemora'lis.

Bull. 585. 2.

GILLS fixed, white, numerous, the upper part only attached to the stem, very thin and delicate, but not brittle; regularly 4 in a set; brownish and mottled when the seeds are ripe.
PILEUS white, smooth, convex, pointed and buffy in the centre, 1 to 1½ inch over.
STEM hollow, white, thickest at the bottom, which is covered with a white cottony substance, 2 to 3 inches high, thick as a raven's quill.

Ag. des devins. Bull. In woods; Edgbaston. Oct. 31st.

Var. 2. Pileus, centre concave: stem cylindrical.

Var. 3. Pileus conical, uneven at the edge: stem cylindrical.

GILLS fixed, white, numerous, 4 in a set.
PILEUS white, smooth, conical, very thin and therefore transparent, uneven at the edge, cone ½ inch high, and as much across at the base.

Curtain sometimes hanging in fragments to the edge of the pileus.
STEM hollow, white, cylindrical, smooth, splitting, not straight but forming a serpentine line, 1½ inch high, thick as a crow quill.

Plantations on low wet ground, amongst grass and moss, Edgbaston. Sept.

The white colour in this species soon tarnishes, changing to a dirty pinky brown, and becoming watery at the edge of the pileus. The outer coat of the stem frequently splits and separates, the inner remaining entire.

Var. 4. Gills yellow white; stem light orange; splitting.

GILLS broad near the stem, fixed only by a claw, and crumpled when fully grown. *Flesh* so little that the gills are marked on the pileus.

In Packington Park.

For other varieties of it see pl. 580 of Bulliard's Agarics; called Ag. *ovinus.*

*AG. (BOLT.) Gills white, numerous, broad, 4 in a set: concin'nus.

pileus mouse brown, conical, blunt: stem white, cylindrical.

Bolt. 15

Gills fixed, thin, pliable, closely set.
Pileus conical, dark mouse brown, dissolving into a sordid jelly; 2 inches over.
Stem hollow, tender, 2 to 3 inches high, thick as a goose quill.
Bolton.

Ag. concinnus. Bolt. Moist woods. 23d Sept. 1786.

va'rius. Ag. Gills white, not numerous, 2 or 4 in a set: pileus conical, scored: stem cylindrical, glossy, stiff, size of a crow quill.*

Var. 1. Gills whitish, 4 in a set: pileus pale brown, edge plaited: stem whitish, crooked and cottony at the root.

Bull. 518. *D.*

Gills fixed, nearly white, not numerous, regularly 4 in a set.
Pileus pale brown, sometimes mouse-colour, conical, scored, rather plaited at the border, $\frac{1}{2}$ to 1 inch from the edge to the point of the cone. *Flesh* white, firm.
Stem hollow, cylindrical, stiff, and elastic, nearly white, but sometimes only silvery white at the top, and polished grey below; thicker, crooked, and cottony at the bottom, 4 to 6 inches high, thick as a crow quill.

The remarkable firm stiffness of the stem characterises this and most of the following varieties.

Ag. fistulosus. Bull. Roots and stumps of a filbert hedge. Oct. Nov.

Var. 2. Gills white, inosculating, 2, 3, or 4 in a set: pileus purplish brown: stem bluish brown.

Sowerby 165—*Schæff.* 52. 1-6.

Gills fixed, white, fleshy, firm, often very irregular and interlaced with ligaments connecting them together, but the general disposition 2 or 4 in a set.
Pileus brown, with more or less of a purplish tinge, edge in the young plants cooped in and white, conical, pointed or bossed, but the apex not always central, streaked, $\frac{1}{2}$ to $\frac{3}{4}$ inch from the edge to the point of the cone.

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* Mr. Bulliard has well figured several sorts of this variable species in his 518th plate, all of which have not occurred to me, but I have found several which still remain to be figured, and have no doubt but several others may yet be found. On this account, and from the difficulties which I know this variable species has occasioned, particular descriptions are added to each variety; for by this means only can we hope to get them properly arranged.

STEM hollow, cylindrical, but more or less compressed, bluish, brown, to pale mouse, firm, tough, generally crooked, 1½ inch high, thick as a crow quill, sometimes a little woolly towards the bottom in the larger plants.

Ag. conicus. Huds. 620. *Ag. galariculatus.* Schæff. Roots of filbert trees, with the preceding. Nov.

Var. 3. Gills white, 4 in a set, connected by threads to the pileus; stem ending in a pear-shaped bulb.

GILLS fixed, white, moderately numerous, connected by white ligaments to the pileus, 4 in a set, but the smaller series very irregular in size.

PILEUS brown, conical, but expanded, pointed, sides streaked, ½ to 1½ inch over.

STEM hollow, mouse-colour, smooth, 1½ to 3½ inches high, thick as a crow quill, swelling suddenly at the bottom into a pear-shaped bulb, and then dividing into roots.

Ag. *filopes.* BULL. 320, the right hand figure would give a good idea of this plant if the stem were not so tall and slender, the gills not loose, and the root not hairy.

Edgbaston Park. 13th Nov. 1790.

Var. 4. Gills white, 2 or 4 in a set: pieusbrownish white, mottled with purple dots: stem white.

Bull. 518. *E. expresses a mottled variety, but it is larger and more coloured than our specimens.*

GILLS fixed to the stem by a small claw, white, not numerous, 4 in a set, but the smaller series often wanting.

PILEUS brownish white, mottled with purplish dots and streaks, conical, cracking at top when full grown, ½ inch from the edge to the point of the cone. *Flesh* white.

STEM hollow, white, glossy, splitting, often crooked, 1 to 1½ inch high, thinner than a crow quill.

At the bottom of posts and pales. 25th Nov.

Var. 5. Gills white, with purple blotches, 2 or 4 in a set: pileus whitish, with purplish brown blotches: stem brown.

GILLS fixed, of a dirty white with purple blotches: not numerous, 2 or 4 in a set.

PILEUS whitish, irregularly blotched with purplish brown, conical, scored, wrinkled at the border, not fleshy, ½ inch from the edge to the point of the cone.

STEM hollow, brown, darkest at the bottom, shining, splitting, crooked, 2 to 3 inches high, thinner than a crow quill.

This singular and beautiful variety has not been figured. It is not common with us.

On a hedge bank in the old road, Edgbaston.
27th Nov. 1791.

Var. 6. Gills white, in pairs, long ones splitting; pileus conical, peaked, brown mouse: stem pale mouse, feeble: root thick, crooked.

GILLS fixed, white, in pairs, long ones often splitting at the outer end, or the short gill connected with the long one.
PILEUS conical, pointed, brown mouse, sides wrinkled, ½ to one inch from the edge to the apex of the cone.
STEM hollow, whitish mouse, smooth, feeble and bending before the decay of the pileus; 2 to 3 inches high, not half the thickness of a crow quill. *Root* much thicker than the stem, bent horizontally and sometimes turning upwards.
Stumps of a filbert hedge, Edgbaston. 17th Oct. 1790.

Var. 7. Gills white, in pairs: pileus dark brown: stem grey.

Bull. 518. *C.*

GILLS fixed, white, alternately long and short, about 20 of each sort.
PILEUS brown to chocolate colour, conical, blunt, border bent in and wrinkled, ¼ of an inch from the edge to the point.
STEM hollow, silvery grey, often crooked, ½ to 1 inch high, not much thicker than a large pin,
This is sometimes found not much above a fourth part as large.
Ag. fistulosus. Bull. Not uncommon in hedge banks.
22d Oct.

*Var. 8. Gills white, 2 or 4 in a set: pileus, upper parts black, lower parts white: stem black below, white upwards.

Bolt. 137.

GILLS narrow, long ones attached to the stem by a pointed claw.
PILEUS oblong-egg-shaped, changing to bell-shaped; ¾ of an inch high; white at the edge only when young, but as it grows the white extends up to its middle.
STEM dusky approaching to black, but when full grown the top is white. Near 8 inches high; thick as a raven quill. BOLTON.
Ag. atro-albus. Bolt.

compres'sus. AG. gills white, fleshy, few, 2 to 8 in a set: pileus brown, irregular: stem white, compressed.

Sowerby 66.

GILLS fixed, white, fleshy, broad, wide apart, very irregular, 2 to 8 in a set, but most frequently 4; often forked at the outer end.
PILEUS brown centre generally darkest, very thin, bluntly conical, but very irregular in shape, more or less transpa-

rent; when full grown the skin cracks and forms little scales; from 1 to 2½ inches over.

STEM hollow, containing more or less of a loose pith, white, brownish at the bottom, compressed, rarely straight, often irregularly crooked and twisted, sometimes so compressed as to appear double, splitting, ¼ to ½ an inch diameter, 2 to 3 inches high. The whole plant very brittle and watery. In a great quantity of specimens I did not find a single one that had not a compressed stem. Is not this another variety of the sportive Ag. aurantius?

In patches on the rising ground opposite the Stews, Edgbaston. 28th June, 1792.

AG. Gills watery brownish white, 4 or 8 in a set, shining at the edges: pileus pale watery brown, convex but flatted: stem white. **argen'teus.**

GILLS fixed, watery brownish white, 4 or 8 in a set, the small ones irregular and uncertain, the long ones sometimes splitting, all of them shining, silvery white at the edges.

PILEUS pale watery brown, convex and bossed when young, afterwards flat topped and the centre depressed, centre darker, surface mealy, streaked at the sides when young, wrinkled and plaited when old; 1 to 2½ inches over.

STEM hollow, silvery white, cylindrical, but thicker downwards, bending, tender, splitting, 2 to 4 inches high, thick as a goose or a swan's quill.

Packington Park in clusters: under elm trees in Edgbaston Park. 10th April 1792.—Aug.

AG. (BATSCH.) Gills brownish white, few, in pairs: pileus golden brown, convex, bossed: stem brown, thick at the top. **auri'comus.**

Batsch. 21.

GILLS fixed, brownish white, not numerous, in pairs, but sometimes a little gill intervening.

PILEUS rich brown, gently convex, bossed, slightly scored, ½ an inch over. *Flesh* white.

STEM hollow, pale brown, thicker and flattened at the top, firm, smooth, 1½ to 2 inches high, thick as a crow quill.

Ag. auricomus. Batsch. Roots of filbert trees, Edgbaston. 24th Nov. 1790.

AG. (SCHÆFF.) Gills white, numerous, uniform: pileus light brown with some bluish lilac tints, convex, border streaked: stem white; ring permanent. **plum'beus.**

Fl. dan. 1014—*Schæff.* 85, 86, *(but the hollow stem not well expressed, though particularly mentioned in the description.)*—*Battar.* 6. *B.*—*Mich.* 78. 2—*J. B.* iii. 826, *fig. to the left hand, good.*—*Sterb.* 20, *K.* 21. *B.*—*Buxb.* 48. 1, *very bad.*

GILLS fixed, white, very numerous, shining at the edges, nearly uniform, a shorter gill only now and then intervening.

PILEUS convex, brown in the centre and bossed; border with more or less of a bluish lilac cast, streaked. In its younger state frosted with white shining particles; 1½ to 3 inches over. *Flesh* white.

STEM hollow, a loose pith in the cavity, very white, cylindrical, bulbous at the bottom, 2 to 3 inches high, ½ an inch diameter. *Ring* white, permanent.

Ray *Syn.* p. 7. n. 31, and all the synonyms of Hudson's *verrucosus*, except Schæff. 90. 91, which are the *Muscarius.*

This is one of the Agarics which possesses all the parts properly belonging to the genus, and the frosted appearance on the pileus is probably the fragments of the wrapper. This species is undoubtedly deleterious, vide J. B. iii. 826, where it is well described; also Haller hist. 2397, and Battar. p. 28, whose fig. and description are excellent.

Ag. plumbeus. Schæff. *Ag. badius.* Fl. dan. Pastures, Edgbaston, several together. Oct.

Var. 2. Pileus very pale bluish lilac.

Schæff. 244.

Ag. hyalinus. Schæff. Shady situations, Edgbaston Park. Oct.

ova'lis. AG. Gills brownish white, 4 in a set: pileus cinnamon, bossed: stem brownish white, cylindrical.

(Bull. 443, *gives an idea of it, but the solid stem precludes it from being the same.)*

GILLS fixed, brownish white, broad, the edge shaped like a bent bow, not very numerous, 4 in a set, the second series nearly as long as the first in the young plants, but the difference is greater as the growth advances.

PILEUS convex, slightly bossed, edge turned down, frequently oval, red brown, paler at the border, satiny, 1 to 3½ inches over. *Flesh* white.

STEM hollow, brownish white, cylindrical, but often somewhat flattened, thicker towards the root, smooth, silky, not quite central, 2 to 3½ inches high, ¼ to ½ an inch diameter. *Root* bulbous.

Fir plantations at Barr, Staffordshire, and in Edgbaston Plantations. Sept. Oct.

Var. 2. Stem rich cinnamon coloured like the pileus, and furnished with a ring.

Specimen and drawing from Mr. Stackhouse.
Coplar Wood, Herefordshire. Mr. Stackhouse.

Ag. Gills purplish greenish white, 4 in a set but irregular, connected by threads to the pileus: pileus, edge purplish, boss reddish brown: stem purplish white. purpurascens.

Gills fixed strongly to the stem, purplish white with a cast of green, fleshy, not numerous, connected by ligaments to the pileus, mostly 4 in a set, but very irregular, the long ones sometimes splitting into 3 or 4 divisions at the outer end. The gills of the second order often end at a distance from the stem, whilst a bit of gill is found on the stem, seemingly intended to meet the other.

Pileus convex, bossed, very thin and semi-transparent at the edge, turning up with age: central boss pale reddish brown, border darker brown with a purple tinge; 1½ to 2 inches over.

Stem hollow, partly filled with a light loose pith, whitish with a purple tinge, smooth, 2 inches high, thick as a swan's quill, more or less bent, and sometimes swollen in the middle.

By the long stew, Edgbaston. 14th July, 1792.

Ag. Gills whitish, numerous, 4 or 8 in a set: pileus convex, centre brown, edge blue: stem pale brown: root large, bulbous. sub-cæruleus.

Gills slightly connected with the stem, nearly white, slightly and irregularly serrated at the edges, the serratures most obvious in the older plants, 4 or 8 in a set.

Pileus convex, brown in the centre, bluish at the edge, elsewhere pale buff, or almost white, smooth, 1½ to 2 inches over.

Stem hollow, but the hollow partly filled with loose pith, pale brown, cylindrical, smooth, cottony at the base, 2 inches high, thick as a goose quill. *Root* a large bulb, covered with a white cottony substance, and dead leaves adhering to it.

In some plants of smaller growth the edge of the pileus is more turned in, giving a rounder shape to the whole of it, and the purple tint is more equally diffused.

Plantations, Edgbaston. 31st Oct. 1790.

purpu'reus. **AG.** (BOLT.) Gills white, 4 in a set: pileus purplish, somewhat bossed: stem cylindrical, purple.

Bolt. 41. *B.—Batsch.* 20, *very like our plant, but the stem thicker, and neither the drawing nor the description speak sufficiently to the structure.*

GILLS fixed, white or purplish white, 4 in a set, uneven at the edge, moderately numerous, smaller series very small, sometimes 1 wanting.

PILEUS bluish white or purple, changing to yellow brown, gently convex, or nearly flat, but always more or less of a central boss, turning up at the edge with age, smooth, ½ to 1 inch over.

STEM hollow, red purple, cylindrical, thick as a crow quill, 1½ to 2 inches high. *Curtain* purplish, composed of threads like a cobweb, vanishing when the plant is yet young.

The purple colour of the stem is the same within as without; that of the pileus is very evanescent. Notwithstanding the difference of size, &c. it may possibly be only a variety of the preceding species.

Ag. purpureus. Bolt. *Ag. janthinus.* Batsch. Fir Plantations at Barr. June 28, 1792.

(2) GILLS brown.

liga'tus. **AG.** Gills pale brown, 4 in a set, connected to the pileus by ligaments: pileus pale brown, flat, bossed: stem pale brown.

GILLS fixed, pale brown, 4 in a set, connected together and to the pileus by cross threads.

PILEUS pale brown, flat, bossed, thin, centre deeper brown, 1½ inch over.

STEM hollow, pale brown, cylindrical, smooth, 4 inches high, thick as a crow quill.

The whole plant semi-transparent, pale brown, white and opake when dry. The threads or ligaments do not seem so much formed for connecting the gills together as for strengthening their union with the pileus and to keep them perpendicular to it.

Edgbaston Park. 17th Nov. 1790.

parti'tus. **AG.** Gills pale brown, few, 2 or 4 in a set: pileus conical, pale brown, sides plaited: stem whitish brown, splitting at the top.

GILLS fixed, pale brown, not numerous, 2 or 4 in a set, the small series being often absent, especially in the smaller plants.

PILEUS mouse brown, paler with age, conical, pointed, sides plaited, ½ inch from the base to the apex of the cone.

STEM hollow, pale brown, cylindrical, polished, splitting at the top, 3 to 4 inches high, thick as a thin crow quill.

This is a very delicate plant; the stem uniformly splits at top in all the specimens I have examined. The pileus always retains its conical shape.

Edgbaston plantations, amongst moss. Nov.

Var. 2. Gills regularly in pairs: stem white above, mouse below; 2 inches high.

Edgbaston plantations. Oct.

AG. Gills light brown, broad: pileus dark red brown, conical: stem white. pyramida'tus.

Schæff. 229.

GILLS fixed, light brown, 4 in a set.

PILEUS dark red brown, conical, the edge expanding, wrinkled, near 1 inch from the base to the apex. *Flesh* thin, light brown.

STEM hollow, whitish, 1½ inch high, thick as a raven's quill.

Ag. pyramidatus. Schæff. In Lord Aylesford's park at Packington.

AG. Gills pale brown, 4 in a set: pileus pale reddish brown, conical, smooth: stem white, splitting. fibro'sus.

GILLS fixed, pale brown, 4 in a set, regular, rather numerous.

PILEUS pale reddish brown, smooth, conical, more red at the apex, ½ to 1 inch high.

STEM with a large hollow, white, rather tapering upwards, thick as a goose quill, 3 to 4 inches high, splitting into 4, 5, or more fibrous shreds, compressed towards the bottom, sometimes crooked.

Perhaps only a var. of the preceding. Differs from the Ag. arundinaceus of Bulliard in the white stem and the regular shaped smooth and unstreaked pileus, as does also his plant from the Ag. collinus of Schæffer.

Grows in clusters. Edgbaston Park. Sept.

AG. Gills pale brown, 4 in a set, but some in pairs and much broader: pileus brown, convex octagonal. octogo'nus.

GILLS fixed, 4 in a set, but irregular, pale watery brown, white at the edges. Besides the above, there are 8 pair of large gills, thrice as broad as the common large ones, whose edges approach and seem united in pairs, but as their attachment to the pileus is at some distance from each other, and the lower edges incline so as to come in contact, if not to grow to each other, there is necessarily a considerable cavity included between them. This cavity is sometimes empty, but sometimes incloses a gill of the common size. The external appearance of these pairs of large gills is not unlike a large seed of an orange.

Pileus pale watery brown, convex, 5-8ths of an inch over, the edge formed into as many projecting angles as there are pairs of the large gills described above.

Stem watery brown, with a small hollow, 1½ inch high, thinner than a crow quill.

Edgbaston, by the little Pool dam. 24th August.

lacrima'lis. Ag. (Batsch.) Gills deep red brown, not numerous, 4 in a set: pileus ochrey brown, scored, dimpled: stem red brown.

Batsch. 8.

Gills fixed, deep red brown, semi-transparent, not crowded, 4 in a set.

Pileus ochrey brown, scored at the sides, dimpled in the centre, edge mostly turned down, ½ to 1 inch over.

Stem hollow, reddish brown, generally crooked, 1½ to 2 inches high, hardly so thick as a crow or a goose quill.

Ag. lacrimalis. Bastch. Hedge banks, Edgbaston old road. Packington Park. 27th Nov.

With us it grows to more than twice the size mentioned and figured by Batsch; the gills are sometimes dark brown, and the flesh white.

Var. 2. Pileus conical: gills hanging below the edge of the pileus.

Batsch. 7.

Ag. lacrimalis. Grass plats. July.

Var. 3. Stem shorter, thick as a goose quill: juice of the gills like watery milk. Mr. Stackhouse.

Probably a distinct species.

circumsep'-tus. Ag. (Batsch.) Gills reddish brown, 4 in a set: pileus whitish brown, scurfy, convex, dimpled: stem whitish brown, turned up at the base.

Batsch. 98.

Gills fixed, reddish brown, 4 in a set, but the short ones very imperfect from the edge of the pileus rolling in.

PILEUS gently convex, whitish brown, scurfy, dimpled, edge at first much bent inwards, but with age tearing and turning up.

STEM hollow, cavity very fine; whitish brown, darker with age, cylindrical, 2 to 2½ inches high, thick as a raven quill. *Root,* the end of the stem thickened and a little turned up.

Fig. of Batsch. too small, but he mentions in his description, which is very good, that the plant is sometimes much larger.

Ag. circumseptus. Batsch. Edgbaston, in pasture lands. 11th Oct. 1790.

Var. 2. Gills orange brown: pileus nearly semi-globular, whitish brown, powdery; stem whitish brown.

PILEUS nearly 1½ inch over; stem 1½ inch high.

In Packington Park, Warwickshire. Autumn.

AG. Gills purplish brown, broad, thin: pileus light brown, semi-globular: stem reddish brown. fusco-purpu'reus.

GILLS fixed, purplish brown, very broad and thin, numerous.

PILEUS light brown, nearly semi-globular, full 1 inch over.

STEM hollow, reddish brown, silky, smooth, twisting and splitting: 2½ inches high; thick as a raven's quill.

In Packington Park. Possibly a var. of the Ag. semi-globatus.

AG. (SCHÆFF.) Gills nut brown, 4 in a set, extending below the edge of the pileus: pileus deep buff, bluntly conical, dark brown at the edge: stem nut brown, smooth, splitting. te'ner.

Schæff. 70.—*Bull.* 535. 1-*and* 403. *B. C. (but the colours in the latter paler than our specimens.)—Sowerby* 33 *is Ag. colus.*

GILLS fixed slightly to the stem, rich nut brown, their extremities dipping below the edge of the pileus, not numerous, 4 in a set.

PILEUS deep buff, edge dark brown, bluntly conical, smooth, ½ inch from the base to the apex of the cone.

STEM hollow, nut brown, cylindrical, silky, smooth, splitting, twisting, 3½ inches high, hardly so thick as a crow quill.

Ag. tener. Schæff. *Ag. foraminulosus.* Bull. Edgbaston, the farther plantation, amongst grass and moss. 31st Oct. 1790.

AG. Gills brown, broad, 4 in a set: pileus rich nut brown, semi-globular: stem rich brown, crooked. xylophil'lus.

Bull. 530. 2 *L. M.* 2.—*Sowerby* 167.

GILLS fixed, brown, 4 in a set, broad.

PILEUS rich nut brown, semi-globular, 1 to 1½ inch over, the edge turned in.

STEM hollow, rich brown, paler upwards, crooked, about 1½ inch long; thick as a raven's quill.

Ag. xylophillus. Bull. In clusters on an Alder stump at the tail of the great pool in Edgbaston Park, in a very wet place. August.

chocola'tus. AG. Gills rich dark brown, mottled, 4 or 8 in a set: pileus pale yellow brown, convex, bossed: stem pale brown.

GILLS fixed, rich chocolate colour, numerous, mottled, 4 or 8 in a set.

PILEUS pale yellow brown, convex, bossed, 1 ½ to 2 inches from the edge to the apex; smooth, fibrous. *Flesh* thin, yellow white.

STEM hollow, pale brown, scurfy, gently tapering upwards, bulbous at the base, splitting from 4 to 6 inches high, 3-10ths to ½ inch diameter.

Curtain fugacious, but leaving a stain on the stem, and fringing the edge of the pileus.

In clusters amongst grass, at Edgbaston. Sept.

fusco-fla'vus. AG. Gills dark cinnamon, 4 in a set; pileus brown yellow, convex, bossed, edge turned down; stem brown yellow, splitting.

Schæff. 4.

GILLS fixed, full cinnamon, broad but not very numerous, 4 in a set, regular.

PILEUS convex, brown yellow, satiny, a small pointed boss in the centre, edge dipping down, 1 ½ to 2 inches over.

STEM hollow, brownish yellow, white below, satiny, cylindrical, compressed, splitting, 2 to 4 inches high, ¼ inch diameter, or more.

Sometimes the pileus is dimpled and scurfy, and the long gills are much broader than the others. These differences seem chiefly to take place when the plants attain a larger size, viz. the stem from 3 to 5 inches high, and the pileus 3 or 4 inches over.

Schæffer's name cannot properly be retained, but our plant exactly corresponds with his figure, which has repeatedly been considered as the Ag. *cinnamomeus* of Linnæus. Mr. Bolton seems to be the first who has discovered that plant in this kingdom, and has figured it extremely well in his appendix.

Ag. croceus. Schæff. Pastures, Edgbaston. 17th Oct. 1790.

Var. 2. Pileus regularly convex: stem short, thin, with a slender hollow.

GILLS fixed, ochrey brown, 4 in a set, moderately numerous.
PILEUS regularly convex, pale buff, darker in the centre, $1\frac{1}{2}$ to 2 inches over.
STEM hollow, brownish, cylindrical, splitting, $1\frac{1}{2}$ inch high, thick as a crow quill; the hollow very fine.

On a flower bed in the garden, Edgbaston. 23d Aug. 1792.

AG. Gills red chesnut, 2 or 4 in a set: pileus chesnut, small, flattish, dimpled; stem fox colour. vulpi'nus.

GILLS fixed, chesnut-colour, firm, 4 in a set; long ones about 30.
PILEUS chesnut, flattish, dimpled, turning up with age, $\frac{1}{2}$ or $\frac{3}{4}$ of an inch over.
STEM hollow, the perforation very fine, tawny or fox-colour, firm, fleshy, 2 to 4 inches high, thick as a swan's quill.

The almost uniform dead foxy-colour, the smallness, flatness, and thinness of the pileus, compared with the length, the firmness, and the thickness of the stem, give this plant a very singular appearance, but I have not found any figure resembling it.

Several together, seemingly from one common root, amongst moss, Edgbaston. 11th Oct. 1790.

Var. 2. Gills in pairs, long ones about 50: pileus convex, not dimpled, very small: stem club-shaped, greatly tapering upwards.

Edgbaston plantations. Aug.—Oct.

AG. Gills purplish brown: pileus bluish, centre brown: stem pale blue. ferruginas'cens.

Batsch, 187.

GILLS fixed, regular, 4 in a set in the smaller, 8 in the larger plants, brownish with a beautiful cast of purple.
PILEUS bluish, browner in the centre, convex, the edge turned in, from 1 to $2\frac{1}{2}$ inches over. *Flesh* purplish.
STEM hollow, pale blue, or whitish, from $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter, 2 to $4\frac{1}{2}$ inches high, club-shaped at the base.

Curtain cobweb-like fibres extending from the stem to the edge of the pileus.

Ag. ferruginascens. Batsch. Red rock plantation, Edgbaston. Sept.

AG. (BATSCH.) Gills cinnamon, 4 in a set, long ones Hyp'ni.

about 15: pileus reddish brown, conical: stem cylindrical, fox-coloured, shining.

Batsch. 96.

GILLS fixed, cinnamon colour, 4 in a set, long ones about 15.
PILEUS uniform reddish brown, conical, blunt, rather scored, 1-8th to ¼ of an inch over.
STEM hollow, but pithy, cylindrical, shining, tawny or fox-colour, ¾ to 1½ inch high, not thicker than a pin.
Ag. Hypni. Batsch. Amongst moss. Oct.

lacinia'tus. **AG.** Gills brown, very broad, ragged at the edges, 4 in a set: pileus light brown, semi-globular: stem white, tapering downwards.

GILLS slightly fixed to the top of the stem, brown, ragged at the edges, very broad, filling up the hollow of the pileus, 4 in a set.
PILEUS light brown, semi-globular, smooth, 1 to 2 inches over. *Flesh* white.
STEM hollow, white, tapering downwards, 1½ to 2 inches high, thick as goose quill.
Edgbaston Park. 15th Oct. 1790.

crena'tus. **AG.** Gills red brown, 8 in a set, the large ones broad and serrated: pileus cool brown, satiny, scolloped at the edge: stem pale brown.

Bull. 526, the hollow stemmed figures very like it, but the gills appear to be loose.

GILLS slightly fixed, red brown, 8 in a set, the large ones broad, irregularly serrated at the edges; the smaller ones very minute.
PILEUS cool brown, very satiny, convex, with a point in the centre which soon changes to a hollow from the expansion and turning up of the pileus, but the very edge constantly turns down. From 1 to 1 ½ inch diameter, and often cracked from the edge to the centre. *Flesh* very thin.
STEM hollow, pale polished brown, thick as a crow or a goose quill, 1½ inch high; often flatted.
Plantations at Edgbaston. Aug.

clypea'tus. **AG.** (LINN.) Gills greyish brown; 4 or 8 in a set: pileus pale brown, convex, bossed, viscid: stem white, viscid.

Bolt. 57—Schæff. 52. f. 7. 8. 9, the stem and the boss more coloured than ours.—Battar. 25. E.

GILLS fixed slightly to the stem, greyish watery brown, 4 or 8 in a set.

PILEUS brown, convex, bossed, border scored, very viscid, so that flies lighting upon it cannot escape, paler in colour when this viscid matter is rubbed off, 1 to 1 ½ inch over.

STEM hollow, white, viscid, tender, easily broken, splitting, 3 or 4 inches high, thick as a crow quill.

Ag. stipitatus, pileo hemisphærico sordido: umbilico prominente, lamellis albis, stipite longo cylindraceo albo. *Fl. Suec.* 1216.

Pileus hemispherical, generally with a pointed boss, viscid. *Gills* white, not hollow underneath, their sides sprinkled with a dark coloured powder. *Stem* cylindrical, long, slender, white. LINN.

There is some doubt whether we are right in considering this species as the same with the *clypeatus* of Linnæus. He says the gills are *white*, but then the circumstance of their being dusted with a dark-coloured powder may give them the colour we have described. He refers to Haller *enum.* 41. 35, where Haller describes them as very white; in every other respect his description applies exactly to our plant, and he refers at 2388 of his *Hist. Helv.* to the same figures which we have found to correspond with ours.—This in many respects resembles the *Ag. varius*, but the elastic firm and wiry stem of that, is very different from the tender texture of this. Mr. STACKHOUSE.

Ag. galericulatus. Schæff. *Ag. clypeatus.* Bolt. Plantations in Edgbaston Park. 5th Sept.

Var. 2. Gills darker brown: pileus powdery.

Pileus white and powdery, but the powder easily falling off, shews a reddish brown ground.

This is larger than the preceding, the diameter of the pileus being sometimes more than 2 inches, the stem 6 inches long, and as thick as a goose quill.

Packington Park, Warwickshire. Autumn.

AG. (BULL.) Gills dark brown to black, 4 or 8 in a set: pileus pale brown, conical, blunt, apex polished: stem white. fimi-pu'tris.

Bull. 66. (very exact, but the stem more coloured than ours.)

GILLS fixed, dark brown, changing to black and liquefying; numerous, mostly 4, but in the full expansion of the larger plants, 8 in a set.

PILEUS pale dead brown, conical, blunt, apex more or less smooth and polished, sides a little streaked, thin, semi-transparent, 1 to 2 inches from the edge to the top of the cone, and as much in diameter at the base, forming an equilateral triangle.

STEM hollow, silvery white, splitting, cylindrical, 2 to 5 inches high, thick as a raven's quill. Top of the pileus sometimes slightly tinged of a chesnut colour.

Ag. fimiputris. Bull. In gardens. Oct.

Var. 2. Gills 4 in a set: pileus grey to black.

Bolt. 66. 1.

In all other respects similar to the above, but not more than half the size.

Amongst rotten oak leaves on grass land. Oct.

Var. 3. Gills chocolate brown to black, mottled, in pairs; pileus mouse colour, conical, pointed: stem mouse, cylindrical firm.

GILLS fixed, dark brown, mottled, turning black, in pairs.

PILEUS conical, pointed, mouse-coloured, sleek and satiny, ½ to 1 inch from the base to the apex of the cone.

STEM hollow, cylindrical, firm, mouse-colour, darker below, 3 to 6 inches high, thick as a crow quill.

Curtain extremely delicate and fugacious, for a short time fringing the edge of the pileus.

This, though one of our most common, and when in perfection a beautiful species, does not appear to be figured by any one. In a fine summer morning it is covered with a bloom like that on a plumb, frequently with a glittering spangled appearance, which, aided by the regularity of its form and the delicate fringe of the curtain, make it an object which the eye contemplates with pleasure. When gathered, the top of the stem is apt to bend at a right angle, so that the apex of the cone points horizontally. The bloom soon vanishes, and the whole turns black in decay. In its general habit and the firmness of its stem, it approaches the Ag. varius.

Ag. varius. Bolt. Grass plats and new-mown fields. July.

Var. 4. Gills grey to blue black, 4 or 8 in a set: pileus conical, pale brown, apex chesnut: stem dark mulberry, cylindrical.

Schæff. 202.

GILLS slightly fixed: grey to blue black, numerous, 4 or 8 in a set.

PILEUS pale brown, conical, scored, apex reddish, polished, ½ inch from the edge to the point of the cone.

STEM hollow, cylindrical, dark blackish red, or mulberry colour, stiff, juicy, 3 to 4 inches high, thick as a crow quill.

The peculiarities of this variety were probably occasioned by the watery situation in which it grew.

Ag. morus. Bot. arr. *ed.* ii. In wet gravel where no grass grows, by the side of the Horse Stew, in Edgbaston Park, under a large oak tree. Oct. 1791.

Sometimes on cow-dung, and when protected by long grass the stem is covered with a white hoariness, which readily rubs off, and the remains of the curtain forms a beautiful festoon round the edge of the pileus. When very young the gills are brown, but they soon change to dark and become mottled.

AG. (SCHÆFF.) Gills pale brown, 4 in a set: pileus pale buff, centre deeper, rather conical: stem whitish, crooked: curtain fugacious. mel′leus.

Schæff. 45.

GILLS fixed by small claws to the stem, pale watery brown, 4 in a set.

PILEUS buff in the centre, paler towards the edge, rather conical, edge turned in, smooth, clammy, 2 inches over. *Flesh* yellow white.

STEM hollow, whitish, scurfy, and brown below, cylindrical, crooked, 2 to 3 inches high, thick as a small goose quill.

Curtain white, tender, not leaving a ring.

Grows in clusters, with a large root extending horizontally, and fixed to fragments of rotten wood.

Ag. melleus. Schæff. Edgbaston plantations. 21st Aug.

* Var. 2. Pileus chesnut colour.

Bolt. 10.

I venture to place this here, but wish the author had been more explicit either in his figure or in his description.

Ag. castaneus. Bolt.

Var. 3. Pileus darker coloured and depressed in the centre: stem light buff, crooked, varying from the thickness of a goose quill to that of a swallow.

On rotten wood about Packington, Warwickshire.

AG. Gills pinky pale brown, 8 in a set: pileus pale brown, convex, bossed: stem white, cylindrical, smooth. ma′cer.

Bull. 518. *f. F.*

GILLS fixed, pinky white when young, changing when expanded to a brownish flesh colour, thin, numerous.

PILEUS conical when young, nearly flat when old, always bossed, slightly scored, uneven at the edge, very thin and semi-transparent, the pale dead brown when rubbed getting a pinky cast: from 1 to 3½ inches over.

STEM hollow, white, cylindrical, smooth, splitting, from 1¼ to 4 inches high, from 1-8th to 3-8ths diameter. Neither curtain nor ring.

Growing in clusters, and like most of the clustered Agarics, varying very much in size.

Ag. fistulosus. Bull. Edgbaston Milking-bank.

July—Sept.

Var. 2. Gills pinky brown, 4 or 8 in a set: pileus very pale buff, nearly flat: stem with a little loose pith in the hollow.

Batsch. 111, *(but the pileus in our plants paler and flatter.)*

GILLS fixed, fleshy brown colour, with a purplish tinge at the edges when shedding the seed, 4 or 8 in a set.

PILEUS nearly flat, with a gently raised boss, buffy white at the border, more buffy in the centre; a little cracking and wrinkled at the edge, 1 to 1½ inch over. *Flesh* very thin, white.

STEM hollow, with more or less pith, white, cylindrical, smooth, 3½ inches high, thick as a crow or raven quill.

The stem is much taller in proportion to the size of the pileus than in the preceding.

In clusters on rotten wood. Oct.—April.

*Var. 3. Gills 4 in a set: pileus nearly white, hemispherical, transparent: stem white.

Bolt. 11.

GILLS fixed, white, with a faint reddish brown tinge, black in decay; thin, flexible, broad, distant, 4 in a set.

PILEUS white, hemispherical, never turning up, sometimes waved at the edge, membranaceous, thin, 1½ to 2 inches over.

STEM hollow, white, readily splitting, 2 or 3 inches high, thick as a swan's quill. BOLTON.—Entirely without flesh. Mr. WOODWARD.

Ag. membranaceus. Bolt. Shady woods on the decaying roots of fallen oak trees. [Not uncommon. Mr. WOODWARD.]

virida'rius. **AG.** Gills pale brown, 4 in a set, few: pileus rich buff, convex: stem pale buff, cylindrical.

Schæff. 226.

GILLS fixed, pale brown, 4 in a set, long ones not more than 16.

PILEUS rich buff, regularly convex, smooth, ¾ inch over. *Flesh* yellowish.

STEM hollow, the cavity pretty much filled with a white pith; pale buff, cylindrical, smooth, 1 inch long, thinner than a crow quill. *Root* a knob.

Has none of the powdery matter on the pileus mentioned by Schæffer, but that is probably a very transitory appearance. The hollow in the stem is uniformly filled with a white pith, the surrounding flesh having a yellow cast. This pith does not appear in Schæffer's figure, therefore I suppose it is not always found so fully to occupy the hollow.

Ag. pulverulentus. Schæff. Grass plats, but not very common. August.

(3) Gills red.

Ag. (Linn.) Gills deep tawny red, broad about the middle, 4 in a set: pileus rich cinnamon, convex, somewhat bossed: stem yellow. **cinnamo′meus.**

Sowerby 205—*Bolt.* 150. *(not Schæff. t.* 4.*)*

Gills tawny red. *Pileus* convex, but flatted, often with a central rise; colour of leather, or of a chesnut. *Stem* yellowish, naked, long. It is readily distinguished by its cinnamon colour. Linn.—Not Haller. *n.* 2432, nor Ray *Syn.* 5. *n.* 23, nor Huds. 615. n. 19.—*Gills* a glowing reddish yellow. *Pileus* yellowish snuff colour, clothy to the touch. *Stem* bright yellow, fleshy, thicker at bottom. So well described by Linnæus that it is surprising it has not been since observed. These observations, accompanied by a beautiful drawing of the plant by Mr. Stackhouse.

Gills fixed by claws, which break as the pileus attains its fullest expansion, deep tawny red, broadest in the middle, uneven at the edge, not crowded.

Pileus rich cinnamon, convex, the edge turned down, and curled in; in its state of greatest expansion flat, the central boss small, pointed; diameter 1½ to 3½ inches.

Stem hollow, fine full yellow, cylindrical, generally crooked, sometimes in old plants flatted, 2 inches high, silky, shining, thick as a goose quill.

Ag. cinnamomeus. Bolt. Plantations belonging to Mr. Pearson at Tettenhall, Staffordshire. July, 1792.—Pendarvis, Cornwall. Mr. Stackhouse.

Ag. Gills red: pileus whitish to brownish buff: stem white, changing to purplish brown. **rubigino′sus.**

Gills fixed, but frequently separating from the stem as the plant comes to maturity; rich pinky red to cinnamon; 4 in a set, numerous, very narrow, paler when young.

Pileus whitish when young, brownish buff when old and cracking; bluntly conical, ½ to 1 inch diameter, thin and semi-transparent.

Stem hollow, 2 to 3½ inches high, thick as a crow's quill; white when young, but changing to purplish brown. *Root* rather bulbous. *Flesh* white.

On cowdung; Edgbaston. 12th Oct. 1793.

ro′seus. AG. (BULL.) Gills rose red, 2 to 4 in a set, connected by cross threads: pileus rose red, bossed: stem pale rose.

Bull. 162—*Sowerby* 72.

GILLS fixed slightly to the stem, delicate rose or peach blossom colour, not numerous, 4 in a set, but the shorter series often wanting, large gills in the larger plants as if bitten at the edges; all of them connected by cross threads or ligaments.

PILEUS blossom or pale rose colour, convex, bossed, scored at the sides, edge ragged, turning up with age and changing to yellow brown, from $\frac{1}{2}$ to $1\frac{1}{2}$ inch over.

STEM hollow, pale or rose colour, firm, splitting, cylindrical, smooth, 2 to 4 inches high, from 1-8th to 3-8ths of an inch diameter.

Ag. incarnatus. RELHAN. suppl. ii. n. 1092. *Ag. roseus.* Bull. Plantations, Edgbaston. Nov. 1790.

Var. 2. Gills fleshy: pileus brown buff inclining to rose, boss darker, smooth, sides ribbed: stem pale rose or yellowish, white at the top.

Schæff. 303.

Ag. rubellus. Schæff. Bottom of stumps. Nov.

Var. 3. Gills pale pink changing to grey; stem flattened, silvery white: root long, taper, brown, woody.

The stem is hollow, but when old the hollow is filled with a beautiful white pith like floss silk. Pileus watery brown.

Packington Park, Warwickshire.

rubecun′dus. AG. Gills pale red, mostly 4 in a set: pileus brick red: stem brown red; root a knob.

GILLS fixed, pale red, not numerous, generally 4 in a set, but the short gills often wanting.

PILEUS pinky red, or brick dust colour, sometimes powdered over with white; conical, flatted at top; 1 to 2 inches over.

STEM hollow, brownish red, crooked, thick as a goose quill. *Root* rather bulbous.

Farther plantations, and by the side of a gravel walk, Edgbaston. 4th Sept. 1792.

ærugino′sus. AG. (CURTIS.) Gills lilac, 4 or 8 in a set: pileus blue, changing to brown yellow, convex, bossed: stem bluish.

Curt. 309, *excellent, (but not Hudson's viridis which has* *white gills, nor yet Micheli* 152, *albi et virides,* 2, *which has a white stem also.)—Schæff.* 1—*Bolt.* 143, *a very large specimen.*

Gills fixed, numerous, rich lilac colour, 4 in a set in the small, 8 in the large plants.

Pileus convex, bossed, blue, slimy, 1 to 3 inches over; border turning up when old.

Stem hollow, bluish, white at the top, nearly cylindrical, $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long; lower part covered with a thin bluish green skin. *Curtain* white, delicate, fringing with its fragments the border of the pileus, and forming a ring on the stem, but not a very permanent one.* *Root* conical, thicker than the stem, growing to rotten wood.

The blue colour of the pileus seems resident in the slimy matter upon it, and this being laid on a yellow ground, produces a greenish cast.

Ray *Syn.* p. 6. *n.* 30. *Ag. viridulus.* Schæff. *Ag. cyaneus.* Bolt. Rookery, Edgbaston. Not uncommon in woods. Mr. Stackhouse. Earsham wood, Suffolk. Mr. Woodward.
Sept. Oct.

Var. 2. Gills 4 in a set: pileus pale blue, pointed: stem entirely white.

A small specimen, perhaps only different from having grown shaded by a large plant of the Ag. Listeri. Var. 1. 31st Oct.

Var. 3. Gills regularly 4 in a set, without cross threads; pileus conical: stem white.

Gills fixed, few, regularly 4 in a set, peach blossom colour.

Pileus conical, pointed, blossom colour, uneven at the edge.

Stem hollow, beautifully white, $2\frac{1}{2}$ inches high, $\frac{1}{4}$ of an inch diameter.

Edgbaston, by the stews, amongst grass; rare.
27th Oct. 1790.

These plants are semi-transparent, tender and brittle. I think Mr. Bulliard mistakes in saying the gills are *loose*, they only become so when the pileus turns up as the plant approaches its decay, and then they are torn from the stem. His reference to Schæffer, t. 75, is certainly erroneous, for that is Ag. *integer.*

Ag. Gills pale red, broad, 4 in a set: pileus convex, scurfy: stem streaked. fis′sus.

Gills fixed, salmon coloured, broad, not numerous, rather fleshy, irregular, 4 in a set.

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* In the Autumn of 1788 in several hundred specimens, I never found one that had a *ring* on the stem; but the following year, almost every one which occurred had this distinguishing mark. Major Velley.

PILEUS convex, or bluntly conical, buff with a pinky tinge, scurfy, streaked at the edge, 1½ to 2½ inches over. *Flesh* hardly any.

STEM hollow, streaked, reddish brown buff, cylindrical or compressed, 4 or 5 inches high; thick as a goose quill.

Woods at Edgbaston. Sept.

Var. 2. Pileus dusky olive, conical, brown at the top: stem grey.

Bolt. 35.

GILLS fixed, thin, flexible, of a colour between carnation and orange.

PILEUS striated at the edge, bluntly conical, 1 to 2 inches over.

STEM hollow, pale grey, but closely examined appears to have fine longitudinal stripes of a mouse colour and silky white alternately; frequently splits throughout its whole length, the edges of the divided parts rolling in so as to give the appearance of 2 stems supporting one pileus; 4 or 5 inches high, thick as a goose quill. BOLTON.

Woods about Halifax.

(4) GILLS purple.

livido-purpu'reus. AG. Gills purple, few, brittle, 4 in a set: pileus purple, convex: stem purple, cylindrical, brittle.

Bolt. 63; *and* 4.

GILLS fixed, fleshy, few, deep rich purple, 4 in a set.

PILEUS convex, waved at the edge, turning up with age and losing its colour; 1½ to 2½ inches over.

STEM hollow, purple changing to brown; 2 to 3 inches high, ¼ of an inch diameter, splitting.

Ag. amethystinus. BOLT. but that name was pre-occupied. Mr. Bolton's name for pl. 4, he himself discovered to have originated in a mistake.

*Var. 2. Whole plant of a dirty brownish flesh colour.

Bolt. 64.

Mr. Bolton thinks this the same as his pl. 63, and says he finds no distinction between them except in *colour*. If so, the dissections have been made carelessly, for the gills in this are drawn remarkably *distant from the stem*, whilst in pl. 4, and pl. 63, they are drawn as *fixed to the stem*. Perhaps however he is right, and the dissected figure may have been drawn from a plant in a weak or decaying state, when the gills may have separated from the stem. I suspect that the whole plant was in a diseased state.

Ag. farinaceus. Bolt. Moist woods, on steep rocks. Packington Park. Red Rock Plantation, Edgbaston. Aug.—Nov.

(5) Gills yellow.

Ag. (Lightfoot.) Gills yellow, fleshy, 8 in a set: pileus conical, orange, edge uneven: stem yellow, splitting. auran'tius.

Curt. 308—*Schæff.* 2—*Bull.* 50, *and* 524. 3—*Bolt.* 67. 2—*Tourn.* 327. *A. B. C.*—*Fl. dan.* 833—*Batsch.* 28.

Ag. stipitatus, pileo convexo, lamellis basi mucrone dentatis, Linn. *Gills* pale yellow, angular at the base. *Pileus* deeper yellow, smooth, edge bent inwards. *Fl. Suec.* 1206. See Ag. psittacinus; note at the bottom of the page.

Gills fixed slightly to the stem, paler or deeper yellow, thick, fleshy, not numerous, irregular, 4 or 8 in a set, long ones about 30 or 40.

Pileus conical, satiny, glutinous, bright red or orange, or pale yellow; brownish, and even black with age; the colour remaining longest at the edge; shape irregular, sometimes bossed, edge always uneven, soon cracking and turning up, $\frac{3}{4}$ to $1\frac{1}{2}$ inch from the base to the apex of the cone. *Flesh* yellow, tender, brittle.

Stem hollow, pithy, pale yellow to deep saffron, streaked, often flatted or twisted, splitting, 1 to 3 inches high, $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter.

Ag. dentatus. Linn. Huds. But I still retain the name given it by Mr. Lightfoot, because we have long been accustomed to associate it with the plant, and it is also more obviously characteristic than that of Linnæus.

Ag. conicus. Schæff. *Ag. croceus.* Bull. *Ag. aurantius.* Bolt. *Ag. luxurians.* Batsch. *Ag. conicus.* Fl. dan. Edgbaston Park, plentiful on a grassy bank sloping to the East. Bungay Common, frequent. Mr. Woodward. Covers, upland pastures, and downs, near Bath. In woods and long grass the stem grows taller. Mr. Stackhouse. June—Oct.

Var. 2. Pileus deep crimson: stem carmine colour; gills 4 in a set.

Bull. 570. 2—*Schæff.* 2. *f.* 6, *nearly represents it.*

Bulliard's *Ag. scarlatin.* is larger than our specimens, which are generally smaller than var. 1. Amongst short grass and moss. Very small, glossy, highly coloured; growing on commons amongst short grass. Woolhope, Herefordshire; Clowance, Cornwall. Mr. Stackhouse. Bulliard's 598. 1. seems also to be the same.

Var. 3. Gills few, pale green, whitish at the edges, 4 in a set, but irregular: pileus green, changing to yellow brown, convex, bossed, irregular: stem green above, yellow below.

GILLS fixed, dilute green, pale yellowish brown, or whitish towards the edges, 4 in a set, but the smaller series very irregular, sometimes absent, sometimes 2 in a place; large ones about 30.

PILEUS convex, bossed, irregular, border scored, turning up with age, green when young, changing to a varying mixture of brownish yellow and green, 1 to 1¼ inch over.

STEM hollow, cylindrical, splitting, greenish upwards, yellowish below, 1½ inch high, thick as a raven quill.

The whole plant semi-transparent, and so slippery with slime, that it is with difficulty retained between the fingers.

Edgbaston Park, by the stews; not frequent.

21st October, 1790.

Var. 4. GILLS loose, pinky, fleshy, 4 in a set; pileus pale pink: stem pinky.

GILLS loose, pinky, fleshy, brittle, not numerous, in contact with, but not fixed to the stem, 4 in a set.

PILEUS pale pink, conical, pointed, edge irregular and uneven, almost clasping the stem when young, turning up with age and cracking entirely through to the very centre; height of the cone 1 inch. *Flesh* thin, pinky.

STEM hollow, white with a pinky tinge, cylindrical, but flatted, often cracking through its whole length on one or both sides, and the edges at the cracks turning in so as to give the appearance of two stems united together; 1 to 2 inches high, ¼ of an inch diameter.

Pastures, Edgbaston, by the long stew in the Park, on land sloping to the North East. 14th Oct.

Var. 5. Gills loose, yellow, 2, 3, or 4 in a set: pileus and stem pinky.

The smallest gills are very minute, and frequently wanting.

On the same sloping ground as the preceding. 22d July.

The Ag. aurantius is the strongest exception I have met with to the present mode of arranging the genus. The last two varieties undoubtedly belong to the aurantius, many of the plates of which will give a good idea of them, if the colours, and the circumstances of the gills were changed. Perhaps the gills in an earlier stage of growth may be found attached to the stem; and as to colour, this species is unusually sportive. To prevent embarrassment I shall introduce them as exceptions to the general distribution; and what system exists without its exceptions. On further examination I am satisfied that the gills are all fixed to the stem, though in some of the varieties only by a nder thread-like substance which breaks as the pileus expands. l these varieties turn black in decay.

G. (WULFEN.) Gills pale yellow, in pairs: pileus deep cera'ceus.
yellow, hemispherical, smooth: stem deep yellow, cylindrical.

Sowerby 20—*Wulfen, in Jacq. misc.* 15. ii. 2.

Ag. stipitatus; pileo hemispherico stipiteque subfistuloso vis: lamellis aquose luteolis. WULFEN.

LLS fixed, yellow, 4 in a set, not crowded, broad.

LEUS convex, dry, deep yellow, ¾ of an inch over, flat and turning up with age.

EM with a fine hollow, yellow, thick as a crow or raven quill, full one inch high, 2-10ths diameter. *Flesh* yellow.

The whole plant of a tender texture and semi-transparent.

Dry pastures, Edgbaston. Sept.

G. (SCHÆFF.) Gills bright yellow, 4 in a set: pileus psittaci'nus.
fine green and rich buff, bluntly conical: stem green.

Sowerby 82—*Schæff.* 301—*Battar.* 21. *E.*

ILLS fixed slightly to the stem, full bright yellow, 4 in a set; long gills about 21; edge scolloped, but without any particular pointed tooth at the base.*

ILEUS bluntly conical, rich buff, border when young beautifully green, viscid, paler with age and the edge turning up, ¾ of an inch over.

TEM hollow, beautifully green, smooth, slimy, tender, splitting 1 inch high, thick as a crow quill. When old the green on the upper part remains, whilst the lower becomes yellow.

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* Schæffer, and after him, our English authors, have supposed this to be e Ag. *dentatus* of Linnæus, but it can hardly be so, as he points out the folwing particulars in his plant which do not exist in ours:—"*Gills* with a tooth at the base, separating from the stem; their edges broad, sub-villose or mealy. *Pileus* convex, border bent in. *Stem* scored towards the top; growing in clusters."—My opinion is well supported by the following rearks of Major Velley: "Schæffer is of opinion that his Ag. *psittacinus* and g. *coccineus*, t. 301—and 302, are both described by Linnæus under the ivial name *dentatus*. If this is the fact, has not the great naturalist formed is specific character with less precision than usual, since there are other garics more obviously dentated than the above, particularly than the *coccieus* 302, which in Schæffer's table does not shew the indented character? I aye frequently found the Ag. *coccineus* of Schæffer, but do not recollect to ave observed the teeth, and if they were observable, in an Agaric so remarkble in its colour and habit, they might have been noticed in the general decription of the plant, while its more obvious distinctions should have furnishd its trivial name."

The whole plant viscid and slimy. The green colour here seems, as in the Ag. *æruginosus*, to be contained in the slimy coating, which being laid on a golden ground acquires such an unusual brilliancy. It wears or washes from the central and projecting part of the pileus and then shews the yellow ground, but it remains longest on the upper part of the stem, because there protected by the shelter the pileus affords.

Ag. psittacinus. SCHÆFF. Pool dam, and the Red Rock Plantation in Edgbaston Park. Aug. Sept.

Var. 2. Pileus ruby red, centre yellowish: stem ruby red, yellowish at the base.

Schæff. 302. *(excellent.)*

GILLS fixed, yellow, fleshy, 4 in a set.

PILEUS convex, flatted, bright ruby red, but the centre more tawny and with age the yellow cast spreads towards the edge; 1¼ inch over. *Flesh* yellow or tawny.

STEM the hollow, very fine, but soon enlarging by the shrinking of the spongy flesh, red above, tawny or yellow below, splitting, nearly cylindrical, 1½ inch high, thick as a large swan's quill.

The gills are always yellow at first, but as the plant grows older the ruby tinge of the pileus pervades them, leaving them only yellow at the edges.

Ag. dentatus of HUDSON and RELHAN. Dr. Sibthorpe refers RAY. Syn. 7. 33. to this plant, and it may be so, but Ray describes his Agaric as becoming inverted and forming when old a funnel-shaped pileus. but the brittle texture of the plant before us will scarcely admit of such an inversion; it cannot even become flat without cracking.

Red Rock Plantation, Edgbaston. 3d Oct. 1794.

crypta'rum. AG. Gills pale yellow, 4 or 8 in a set: pileus pale yellow: convex, smooth: stem yellow, slender, smooth.

GILLS fixed, brimstone yellow, numerous, narrow, 8 in a set.

PILEUS pale yellow, convex, rather conical, nearly flat when fully expanded, ¼ to ¾ of an inch diameter.

STEM hollow, the tube very slender, yellow, polished, thick as a crow quill, ½ to 1¼ inch high; often crooked.

The whole plant of a delicate pale yellow; it grows in clusters. Under the horizontal wooden door of a wine vault, Edgbaston. Sept.

Var. 1. Gills pale yellow, 4 in a set: pileus pale yellow, conical, smooth; stem dusky white.

Bolt. 71. 1.

GILLS fixed by a fine point.
PILEUS glutinous, bell-shaped, pale dusky yellow, hardly ½ inch high.
STEM hollow, dusky white, 1 inch high, thickness of a thin crow quill. Whole plant tender, watery, pellucid, wrapped in a soft downy covering when very young. BOLTON.

Ag. aquosus, Bolton; not Ag. aquosus of Hudson, which is a variety of the Ag. congregatus.

On rotten wood, under the sprinklings of the stream of Elm Cragg Well at Bellbank, near Bingley. April.

(6) GILLS buff.

AG. (BATSCH.) Gills buff, broad, 4 in a set: pileus convex, buff, darker in the centre, viscid: stem buff, polished. subcar′-neus.

Fl. dan. 1071. 2—*Batsch.* 100—*Schæff.* 63.

GILLS fixed, buff, 4 in a set, broad, long ones about 22.
PILEUS buff, convex, viscid, near ½ inch diameter; when old nearly flat, but hollowed in the centre and cracking at the edge. Sometimes the pileus is nearly semi-globular, but the edge turned outwards like the brim of a hat.
STEM hollow, the hollow nearly filled with pith, buff, viscid, polished, cylindrical, about 1 inch high, thinner than a crow quill. Ray Syn. p. 8. n. 38.

Ag. campanulatus. Schæff. *Ag. subcarneus.* Batsch. Packington and Edgbaston Parks, on rotten wood. 7th Nov. 1790.

AG. Gills deep buff, 4 in a set: pileus convex, buff: stem whitish above, dark brown and scaly below: ring permanent, pale brown. scario′sus.

GILLS fixed, numerous, deep buff, 4 in a set.
PILEUS convex, rather bossed, pale buff, but the centre, and a circle round the border darker; ½ to 1½ inch over. *Flesh* white.
STEM hollow, cylindrical, thick as a raven's quill, 1½ to 2 inches high, nearly white above the ring, dark brown below it; the dark part apparently rough with short, brown, slender, rising scales. *Ring* fixed near the gills, forming a beautiful pale brown fringe round the stem. Resembles the Ag. nigripes. Bull. 344. but the gills in our plant are darker, and that has no ring.

Plantations, Edgbaston. 31st Oct. 1790.

Var. 2. Gills uneven at the edge; pileus yellow brown, bell-shaped, blunt; stem pale buff; ring none.

Edge of the pileus very dark coloured, and turned up.
On rotten wood, in Packington Park. Autumn.

floccoʹsus. Ag. (SCHÆFF.) Gills buff, 2 or 4 in a set: pileus convex, bright bay, tufted with dark hair: stem brown, bay, tufted.

Curt. 264, *very large—Schæff.* 61, *size of our plants—Bull.* 266, *gills much darker than ours-Batsch.* 30.-*(not Battar. t.* 8. *H. for that part is entirely white.)*

GILLS fixed, buff, turning brownish, numerous, 2 or 4 in a set, but irregular.
PILEUS bright bay, set with dark triangular pencils of hair, convex when young, bossed in middle age, concave when old, edge turned down, 1½ to 2 inches over.
STEM hollow, brown, fibrous or hairy, 2 inches high, nearly as thick as a goose quill. *Curtain* fugacious. *Ring* permanent.

This is with us a very rare species, and my opportunities of examining it have been insufficient to allow me to clear up some difficulties which present themselves on inspecting the figures and descriptions of authors. I beg therefore to be understood as speaking with great uncertainty, and wish it may challenge the attention of those botanists who have had better opportunities of examining it. I have two sorts of shaggy Agarics now before me, the one just now described, gathered at Edgbaston, and other sort sent from Herefordshire by Mr. Stackhouse. The first sort has a regular fine hollow in the stem, and fixed gills, the second has a solid stem and decurrent gills. The habit and general appearance are the same in both, but these essential differences in structure require them to be kept apart. Schæff. 61. is a very exact representation of the plants found here, and Schæff. 80. agrees well with the Herefordshire plant. Schæffer was aware that they were not the same plants, and has attempted, though not unsuccessfully, to point out some discriminating differences. Curtis 264, and Bull. 266, agree with the Edgbaston plant in structure, but they are both much larger, and the colour of the gills is too dark in M. Bulliard's plate. The Herefordshire plant has been extremely well drawn by Mr. Stackhouse; it is also indifferently figured Fl. dan. 491, of a small size. For what more I know respecting it see Ag. pilosus.

Ag. floccosus. Schæff. *Ag. squamosus.* Bull. *Ag. castaneus.* Batsch.

(7) GILLS yellow.

AG. Gills pure yellow: pileus yellow, nearly flat, with an orange boss: stem yellow. fla′vicans.

GILLS fixed, yellow, narrow, 4 in a set.
PILEUS yellow, with an orange-coloured boss; nearly flat, 1 inch diameter.
STEM hollow, yellow, splitting, 1 to 1½ inch high, thick as a raven quill.

The pileus is nearly flat even in the younger state of the plant. Not much unlike Ag. scariosus, but differs in the colour and in the want of a ring.

In the Earl of Aylesford's park at Packington, Warwickshire. Autumn.

(8) GILLS green.

AG. (HUDS.) Gills brown green, 4 in a set: pileus yellow and orange: stem yellow. fascicula′ris.

Schæff. 49. 1. 2. 3.—*Bolt.* 29—*J. B.* iii. 835.

GILLS fixed, pale brown with a greenish cast, changing to dark olive brown; very numerous.
PILEUS more or less conical, yellow, clothy, brown orange in the centre, which is sometimes rather bossed, 1½ to 2 inches over.
STEM hollow, yellow, crooked, sometimes compressed and appearing as if double; 2 to 4 inches high, thick as a crow or a goose quill.
Curtain very pale yellow, fugacious, leaving no durable mark on the stem.

In the larger and more expanded plants some of the long gills separate from the stem; and then they cease to grow, for they appear less broad than those which remain attached to it. This circumstance however compels us to count 8 in a set.

Gills very closely set and in maturity changing from a yellowish green to a dusky colour, discharging a dust when shaken. Major VELLEY. When held against the light with the gills towards the eye and gently turned round, a beautiful golden metallic lustre seems to play upon the under surface.

RAY Syn. p. 9. n. 50. *Ag. lateritius.* Schæff. *Ag. fascicularis.* Bolt. In clusters; sometimes apparently distant from any rotten wood, but most constantly found under trees, or near the bottom of posts. June—August—April.

Var. 2. Gills yellow to greenish, 8 in a set, regular: stem with a ring.

Batsch. 29.

GILLS fixed, pale yellowish, soon changing to greenish; regularly 8 in a set.

PILEUS at first conical, the edge turned in, then nearly flat, full buff, harsh to the touch, 1¼ to 1½ inch over.

STEM hollow, pale yellow, silky, seldom quite straight, 1½ to 2½ inches high, near ¼ inch diameter, marked very near the top with a ring.

Curtain woolly, pale greenish yellow, not very fugacious, part adhering to the edge of the pileus and part to the top of the stem, forming a ring.

Ag. spadicies. Batsch. In clusters, Edgbaston, at the bottom of posts, or other half rotten wood. Oct.

Var. 3. Gills watery white changing to grey green: pileus irregularly convex, bossed.

Fl. dan. 890-*Battar.* 22. *D. G. N-Bolt.* 5-*Schaff.* 49. 6. 7.

GILLS fixed slightly to the top of the stem by a minute claw, watery white with a faint tinge of grey, which soon attains a greenish cast; numerous, 4 or 8 in a set.

PILEUS irregularly convex, bossed but flatted at the top, sides depressed in places, edge turned in, deep buff approaching to brown orange, and sometimes to red chesnut, paler at the sides, cracking, 2 to 5 inches over.

Flesh yellow, white.

STEM hollow, with a loose pith, yellow white or buff above, brown at the bottom, smooth, crooked, cylindrical, spitting, 3 to 4 inches long, and near ½ inch diameter.

Curtain woolly, greenish white, fringing the edge of the pileus, but seldom leaving a permanent ring on the stem.

Ray *Syn.* p. 10. n. 57. *Ag. pomposus.* Bolt. *Ag. lateritius.* Schæff. *Ag. auratus.* Fl. dan. Single or in clusters, not uncommon, but the root always attached to rotten wood. Nov.—April.

Var. 4. Gills dirty pale green covered with a purplish brown powder, and waved at the edge.

GILLS fixed, numerous, 8 in a set, much waved at the edge, pale dull watery green, soon becoming covered by the seeds which are brown with a purplish cast. *Flesh* yellowish.

PILEUS when expanded nearly flat, but waved and wrinkled at the edge, deep buff, red brown in the centre, 5 to 7 inches over.

STEM hollow, tinted with lighter and darker shades of yellow brown, 5 to 8 inches high, ½ inch diameter.

Mostly solitary. Cherry Orchard, Edgbaston. Oct.

auran'tius. AG. Gills fixed, few, pale green, whitish at the edges, 4 in a set, but irregular: pileus green, changing to yellow brown, convex, bossed, irregular: stem green above, yellow below.

Ag. aurantius. Var. 3. see page 262.

(8) GILLS grey.

AG. Gills grey, changing to dark chocolate: pileus bright red orange, widely conical: stem light brown: flesh yellow. carneo-fla′vus.

GILLS fixed, grey, turning to very dark brown.
PILEUS bright red orange, widely conical, bossed, 1 to 3 inches over.
STEM hollow, light brown, scored; 2½ to 3½ inches high, nearly as thick as a goose quill. *Curtain* adhering to the stem.
In Lord Aylesford's Park at Packington.

AG. Gills grey, 4 or 8 in a set: pileus brownish grey, bluntly conical: stem whitish brown, cylindrical. corona′tus.

GILLS fixed, grey, 4 or 8 in a set, sometimes not reaching the edge of the pileus.
PILEUS bluntly conical, flattish at the top, whitish brown or grey, darker in the centre, skin round the summit of the cone cracking in a circle, and the cracked edge turning up forms a kind of cap upon the pileus; 1 to 1½ inch over.
STEM hollow, whitish brown, cylindrical, crooked towards the root, splitting, 3 to 4 inches high, thick as a raven quill. *Ring* white.
Edgbaston Grove, not common. April.

Var. 2. Gills grey, edged with white, 8 in a set: pileus semiglobular, mealy, white: stem mealy, white.

GILLS fixed, grey edged with white, black when old.
PILEUS entirely covered with a white meal, semi-globular, edge cooping in, 2 inches over.
STEM with a fine hollow, smooth, covered with a white powder, perfectly cylindrical, 6 inches high, thicker than a raven's quill; cottony at the base.

When the mealy powder is rubbed off the pileus or stem, the skin appears of a pale livid brown colour. Sometimes it is found in a glutinous state, and then it resembles the following species, but the want of horizontality in the edge of the gills distinguishes it.

Pastures, Edgbaston, but rare. July.

semi-globa'tus. Ag. (Batsch.) Gills grey, mottled, 4 or 8 in a set: edge horizontal: pileus greenish yellow, semi-globular: stem pale buff.

Curt. 194—*Batsch.* 110—*Bull.* 566. 4—*J. B.* iii. 847, *the upper figure good*—*Schæff.* 203, *probably designed for it.*

Gills fixed, when very young whitish, but always grey at the edges, soon becoming entirely grey, and mottled, changing to chocolate with age; 4 in a set in the smaller, 8 in the larger plants; long ones about 20 or 24, their edges forming an horizontal line from the stem to the edge of the pileus.

Pileus nearly semi-globular, yellow, or buff, to brownish; very glutinous, wrinkled with age, $\frac{3}{4}$ of an inch over.

Stem hollow, the perforation very fine and sometimes partly filled with a white pith; very pale buff, smooth, clammy, 2 to 3 inches high, thick as a crow quill.

Curtain tough, fugacious, leaving a ring near the top of the stem, which does not continue long.

Ray *Syn.* p. 7. n. 37. Hudson, p. 619, n. 33, but not Schæff. 210. Ray's description is very expressive. Major Velley.

The whole plant is sometimes not larger than a large pin. Mr. Curtis had named it *glutinosus*, but that term had before been applied to more than one species, and the name given it by Batsch, which I have therefore preferred, is very expressive.

Ag. semi-globatus. Batsch. *Ag. lustre.* Bull. Pastures, grass plats, not uncommon. July—Oct.

*Var. 2. Stem livid.

Pastures, in cow dung. Sept. Oct. Mr. Hudson.

Var. 3. Gills brown grey, 4 in a set, long ones 16 or 18: pileus pale buff, smooth, viscid, semi-globular, but pointed in the centre: stem white, viscid.

Batsch. 5—*Schæff.* 236, *(the figures agree better than the description.)*

Pileus about $\frac{1}{2}$ an inch over.

Stem hollow, silky, nearly white, 3 inches high, thinner than a crow quill.

Ag. griseus. Schæff. Edgbaston plantations. 31st Oct. 1790.

VI. HOLLOW and LOOSE.

(1) Gills white.

Ag. collariatus. *see* Merulius collariatus.

proce'rus. Ag. (Scop.) Gills white, uniform, fixed to a collar: pileus a broad cone, bossed, white brown, scaly: stem scaly: ring loose.

Curi. iv. 39—*Sowerby* 190—*Fl. dan.* 772—*Schæff.* 23. 22—*Bull.* 78—*Sterb.* 7.—*A. Clus.* 274. 18.

GILLS loose from the stem, but fixed to a collar surrounding its top; white, uniform, and numerous.

PILEUS a broad blunt cone, more or less bossed, whitish, but covered with brown tawny scurfy scales, from 3 to 7 inches over. *Flesh* white, spongy.

STEM hollow, a fine pith in the cavity; gently tapering upwards, whitish brown, scaly, 6 or 8 inches high, ½ inch diameter.

Curtain white within, brown on the outside, fixed to the edge of the pileus and to a loose ring upon the stem. *Ring* cartilaginous, loose, permanent. *Root* a pear-shaped bulb.

A short intervening gill is sometimes found in the larger specimens. This plant when preserved in pickle is very liable to run into the vinous fermentation.—Its size and large horizontal ring distinguish it. The white gills change with age to straw-colour and dark brown. Mr. STACKHOUSE. Ray *Syn.* p. 3. n. 10.—p. 4. n. 18.—p. 4. n. 17.

Ag. procerus. Huds. *Ag. procerus.* Schæff. *Ag. colubrinus.* Bull. *Ag. procerus.* Fl. dan. Hedge banks, and dry pastures, not uncommon. Sept.

Var. 2. Gills white, fixed to a collar, 2 or 4 in a set, irregular: pileus conical, bossed, smooth, pale brown: stem whitish brown, smooth above.

GILLS loose from the stem, but fixed to a collar surrounding its top, white, numerous, very irregular, sometimes 2 long ones together, sometimes a long and a short one alternately, most frequently 4 in a set, long gills often split at the end next to the edge of the pileus.

PILEUS convex, bossed, rich pale tawny brown, edge turned in, smooth and soft like glove-leather, wrinkled, the outer skin cracking with age, 4 to 6 inches over.

STEM hollow, the cavity loosely filled with a fine silky pith, nearly cylindrical, crusted below, browner and flecked above, 6 or 7 inches high, 1-3d of an inch diameter. *Curtain* white. *Ring* loose on the stem, permanent. *Root* a pear-shaped bulb.

By the large clump of beeches, Edgbaston Park. 25th Oct.

Var. 3. Gills white, fixed to a collar, in pairs, irregular; pileus conical, bossed, tufted, pale brown: stem smooth, white.

Bolt. 23.

GILLS loose from the stem, but fixed to a collar surrounding its top, salmon-coloured when young, white when full grown, very numerous, mostly in pairs, but sometimes 3 or 4 in a set.

PILEUS globular when young, then conical, lastly flat, but bossed, whitish brown, covered with tufts of a darker shade, 3 to 5 inches over. *Flesh* white, thin.

STEM hollow, loosely filled with fine silky pith, cylindrical, white, smooth, sometimes downy, 4 to 6 inches high, 3-8ths of an inch diameter. *Curtain* white. *Ring* loose, strong, permanent. *Root* a bulb, becoming flat with age like an onion, and then the lower part of the stem becomes angular.

Ag. annulatus. Bolt. In the large plantation of beeches, Edgbaston Park. Sept.

Var. 4. Gills white, fixed to a collar, 2 or 4 in a set: pileus convex, rather bossed, brown upon a white ground: stem white, smooth, tapering upwards: ring loose.

Schæff. 18. 19.

GILLS loose from the stem but fixed to a collar surrounding its top; white; 4 in a set, sometimes in pairs; edges finely serrated with white glandular, or perhaps seminal substances.

PILEUS convex, bossed, delicate tawny brown, the outer skin tearing as the plant enlarges, it shews a dead white ground freckled over with scurf or scales of the first brown colour, 2 to 3 inches over. *Flesh* white.

STEM hollow, with a very fine, loose, silky pith; white, tapering upwards, splitting, 3 inches high, 3-8ths diameter.

Curtain white, fringing the head of the pileus when it tears. *Ring* permanent, fixed to the stem. *Root* but little larger than the stem.

Ag. excoriatus. Schæff. Ray *Syn.* p. 3. n. 11.

This is a very beautiful plant, approaching in much of its structure so closely to the Ag. procerus that it must be considered only as a variety of it, nor do I think the smooth white stem, or the more tender and fixed ring sufficient to establish it as a species; yet it must be confessed that its habit and its smaller size impress one with a different idea.

Edgbaston Park, under large Spanish chesnut trees. 4th Sept.

sachara'tus. AG. Gills white, mostly uniform, narrow: pileus brown, flat: stem white, cylindrical.

GILLS loose, not reaching the stem, white, not numerous, uniform, but sometimes 1 and very rarely 2 short gills intervening.

PILEUS pale brown, flat, darker in the centre, border scored, semi-transparent, surface sprinkled with remnants of a white wrapper like candied sugar, most frequent about the centre, 2 inches over.

STEM hollow, white, cylindrical, 3 inches long, thick as a large goose quill.

Edgbaston Park, on the bank opposite the long stew.

*AG. (LINN.) Gills white, numerous, uniform: pileus white, bluntly conical: stem white. extinctorius.

Bolt. 24—*Bull.* 437. 1. 2—*Battar.* 27. *H.*

Ag. stipitatus, pileo campaniformi albido lacero, lamellis niveis, stipite sub-bulboso subulato nudo. LINN.

Gills very white. *Pileus* convex, somewhat conical but expanding, dead white, surface scaly and torn, apex smooth. *Stem* dead white, thickest at the base, tapering, without a ring. *Fl. suec.*

GILLS uniform, thin, pure white, changing to pale brown.

PILEUS shaped like an extinguisher, but blunt at the top and uneven at the edge, white, changing to pale brown; surface smooth at first, with age streaked or scaly; 1 or 1½ inch from the edge to the apex.

STEM hollow, with a downy cotton within, smooth, cylindrical, 3 to 5 inches high, 3-10ths diameter. BOLTON.—*Gills* uniform, snow-white changing to blackish brown. *Pileus* flapping down the stem, yellowish or dirty white. *Stem* long, hollow, swelling at the base. Mr. STACKHOUSE.

Ag. extinctorius. Bull. *Ag. extinctorius.* Bolt. Amongst sand in moist and shady situations, but rare about Halifax.—[I found it once at Woolhope, Herefordshire. Mr. STACKHOUSE.]

AG. Gills white: pileus very thin, white or brownish, flat, bossed, edge rolling up: stem white, enlarging downwards. stercorarius.

Bull. 542, *and* 68.

GILLS loose, distant from the stem, white, very narrow, generally in pairs, sometimes 4 in a set.

PILEUS white or brown white, sometimes hasle in the centre, flat, slightly bossed, extremely thin, the edge rolling up, from ¾ to 2½ inch diameter.

STEM hollow, white, thick as a goose or a raven quill below, gradually tapering upwards, 4 inches high.

The whole plant extremely tender and brittle, of short duration, dissolving into a black liquid.

Ag. stercorarius. Bull. Pastures and woods, on horse and cowdung. Autumn.

Var. 2. Pileus light grey brown: stem swollen above the bottom and tapering upwards and downwards.

GILLS loose, distant from the stem, white, narrow.
PILEUS light grey brown, streaked, conical, but expanded and bossed in its most perfect state, 2 to $2\frac{1}{2}$ inches over.
STEM hollow, white, shining, 4 or 5 inches high, hardly so thick as a goose quill, but for two inches above the root swollen out like the stem of an onion and tapering each way.

In Lord Aylesford's Park at Packington.

Var. 3. Pileus conical to bell-shaped, pellucid, watery white, top brownish mouse: stem white, pellucid, tall, thin.

Bull. 320—*Bolt.* 37.

GILLS loose, narrow, very thin and delicate, pellucid.
PILEUS conical changing to bell-shaped, smooth, striated when it begins to decay, $\frac{1}{2}$ inch to 1 inch over.
STEM hollow, white, pellucid, very tender and brittle, 6 inches high, thick as a small packthread. BOLTON.—*Gills* few, thin, transparent. *Pileus* mouse-coloured, thin, striated. *Stem* very long, slender, brittle, woolly near the base. Mr. STACKH.—M. Bulliard observes that the stem is often 4 inches high before the pileus is larger than a pin's head.

In dry weather the edge of the pileus is apt to roll inwards very much. In open pastures the stem is shorter than in woods.

Ray *Syn.* p. 9. n. 45. *Ag. tenuis.* Bolt. and Bot. arr. *ed.* ii. Amongst moss and grass in shady woods at the roots of large trees. Summer and Autumn—[Woods near Woolhope, Herefordshire. Mr. STACKHOUSE. Woods and pasture ground, Edgbaston. On the cone of a Scotch fir in Packington Park.]

Var. 4. Pileus brown or bluish grey, apex nearly black: stem grey.

In the Park at Packington.

clypeola'rius. AG. Gills white, numerous, 4 in a set: pileus convex, bossed, pale brown, mottled: stem smooth.

Var. 1. Stem brownish, ring brownish.

Sowerby 14—*Bull.* 306, 2.

GILLS loose, white, very numerous, 4 in a set.
PILEUS convex, bossed, pale brown, mottled with dull greenish and a few reddish spots, edge turned down; $1\frac{1}{2}$ to 2 inches over.
STEM hollow, smooth, very pale brown, 2 to 3 inches long, thicker than a swan's quill. *Ring* permanent, loose on the stem. *Root* a bulb.

The want of a collar at the top of the stem separates this from the Ag. procerus.

Ag. meleagris. Bot. arr. *ed.* ii. Edgbaston Park, not frequent. 11th Oct. 1790.

Var. 2. Stem quite white: ring white, delicate.

Bull. 506. 2. L.

This is a very small variety, the pileus hardly ¾ of an inch over, the stem 1 inch high, the size of a crow quill.

Ag. clypeolarius. Bull. Cherry orchard, Edgbaston, a single specimen. Sept.

Var. 3. Stem without a ring, pileus beautifully mottled.

Bull. 405—*Bolt.* 7.

GILLS loose, pure white, numerous, tender and delicate, 4 in a set, but not very regular; in the larger specimens running close up to the stem, though not united to it.

PILEUS convex, expanded, centre rich red brown, white towards the border but beautifully mottled with red scurfy freckles, 2½ inches over. *Flesh* white, very tender.

STEM hollow, red buff below, paler upwards, tender, splitting, cylindrical but rather tapering upwards, 3 inches high, ½ inch diameter.

Pileus at first sharply conical, smooth, white, mottled, boss darker. *Stem* brown, splitting into threads. *Gills* easily separating, fleshy, few. *Curtain* white, delicate, fugacious, but leaving some marks on the stem, and on the edge of the pileus. It has a disagreeable smell.

Ag. clypeolarius. Bull. Woods near Bath. Powick, near Worcester; pastures, Woolhope, Herefordshire. Mr. STACKHOUSE. In a pine grove, Ditchingham, Norfolk. Mr. WOODWARD; who sent me a very accurate description of it before he knew that it had been found elsewhere. Edgbaston Park, amongst grass, very rare.—*Ag. cristatus.* Bolt. August.

Var. 3. Gills white, crowded, 4 or 8 in a set: pileus convex, dirty white, with reddish blotches and centre reddish: stem dirty white, blotched: ring none.

Curt. 315—*Buxb. hall. row the last, marked p.* 122.

GILLS loose, very numerous, narrow, white, changing to a reddish brown.

PILEUS convex, nearly flat with age, whitish but blotched with rusty red, and almost wholly red in the centre, smooth, 1 to 3 inches over. *Flesh* white, firm, twice as thick as the gills are broad.

STEM hollow, clumsy, often spotted with rusty red, faintly striated, cylindrical, but tapering at the root, 3 inches high or more, 3-8ths diameter. *Flesh* white, firm, in thickness equal to the diameter of the hollow. *Curtis* Fl. Lond. v. 53.

Ag. carnosus. Growing singly or in clusters, in Lord Mansfield's pine wood, Hampstead. [Pine grove, Kirby, Mr. WOODWARD.] Sept. 22d.

allia'ceus. AG. Gills white, irregular: pileus dark brown at top, paler a the edge: stem almost black: root crooked, knotted.

Jacq. austr. 82—*Sowerby* 81.

GILLS loose, pale, unequal, mostly 4 in a set, long ones sometimes cloven: they are loose from the stem, but fixed to a fleshy ring underneath the pileus.

PILEUS bluntly conical, dark brown at the top, paler towards the edge, scored, smooth, opake, 1½ inch over.

STEM hollow, black, shining, straight, firm, 4 to 6 inches high.

Root crooked, thick, knotty, sunk about an inch into the earth, and always attached to rotten wood. Always solitary. Has a strong offensive garlic smell, which it retains for days after it has been gathered. Linnæus supposed it to be a variety of his Ag. campanulatus. JACQUIN.

Ag. alliaceus. Jacq. but not of Bulliard, for that has a stem hairy on the outside and solid within.

Mr. RELHAN found this plant in woods and shady places attached to rotten wood, and oak leaves, particularly in Madingley Plantations. It has lately been found also in woods about Packington, Warwickshire. Sept.

ochra'ceus. AG. (SCHÆFF.) Gills white, 4 in a set; pileus buff, convex, semi-transparent: stem buffy white.

Schæff. 255.

GILLS loose, white, 4 in a set, but the smaller series irregular.

PILEUS buff, convex, semi-transparent, flat with age, and uneven at the edge, 1 to 1½ inches over.

STEM hollow, buffy white, semi-transparent, cylindrical but crooked where the root begins, 1 to 2 inches high, thick as a crow quill.

Substance tender, so as not easily to be gathered from amongst the grass without breaking. In Schæffer's fig. referred to above, the gills are too highly coloured, and do not agree with his description.

Edgbaston Park. Sept. 1791.

Var. 2. Gills 8 in a set; pileus red brown, darker at the edge, stem white.

The Island, Edgbaston pool. 22d June, 1791.

Var. 3. Gills yellowish watery white, 8 in a set; pileus rich red brown, pale at the edge, cracking: stem as dark, or darker than the pileus.

The stem so disposed to split that it is hardly possible to gather it entire. The gills leave an impression at the top of the stem, as if they had been fixed to it before the expansion of the pileus.

Ag. lacer. Schæff. Under an oak by the side of the great pool; Edgbaston. 21st June, 1792.

Var. 4. Gills 8 in a set, often forked; pileus brown buff; stem red chesnut.

Pileus very thin, semi-transparent, much crumpled and waved at the edge, from 1 to 2 inches over. *Stem* hollow, flatted, frequently grooved or channelled on each side, so as almost to be divided lengthwise; deep red chesnut below, paler upwards, but sometimes darker upwards, and white at the top.

Red Rock Plantation, Edgbaston. Sept.

AG. Gills yellow white, 4 in a set: pileus yellow white, dis′par.
convex: stem deep red brown, yellow within.

Batsch. 210.

GILLS loose, whitish, narrow, numerous.
PILEUS yellow white with a slight flesh-coloured tinge, convex, edges turned in, 1½ inch over.
STEM hollow, red brown, yellow in the inside, larger upwards, sometimes flattened, 2½ inches high, nearly as thick as a goose quill.

Ag. dispar. BATSCH. In the Park at Packington, Warwickshire.

AG. Gills brownish white, broad, regularly 4 in a set: fusco-al′-
pileus semi-globular, brown, smooth: stem brown. bus.

GILLS not reaching the stem but forming a channel round it, white or brown white.
PILEUS dark brown chesnut, hemispherical, turning up with age, smooth, sometimes rather bossed, without flesh, ¾ to 1 inch over, quite black when old.
STEM hollow, size of a straw, ½ inch high, dark brown, thicker at the top where it joins the pileus. Description and drawing from Mr. STACKHOUSE.

In short grass, on commons in Herefordshire, not unfrequent, but I do not find it noticed. Mr. STACKHOUSE. In the further plantations, Edgbaston. Aug.

*AG. (BULL.) Gills white, in pairs: pileus brown, glo- pilulifor′-
bular: stem white. mis.

Bull. 112.

GILLS loose, white, narrow.

PILEUS brown, quite globular when young, rather less so when full grown, from the size of a large pin's head to that of a large pea.

STEM hollow, white, cylindrical, ¼ to 1 inch high, thick as a swallow's quill. BULLIARD.

Ag. piluliformis. BULL. At the foot of trees, and under slabs of wood; some scarcely larger than a large pin. STACKHOUSE.

turbina'tus. AG. (RAY.) Gills yellowish white, in pairs: pileus yellow brown, cylindrical, scored: stem white.

Schæff. 66, *(but larger than our specimens.)—Sowerby* 102.

GILLS loose,* semi-transparent, yellowish white, in pairs.

PILEUS nearly cylindrical, reaching half way down the stem, blunt at the top, scored at the sides, uneven at the edge; yellow brown, deeper and richer brown at the top, white at the edge; when fresh gathered, beautifully frosted over with distinct globular pellucid particles.

STEM hollow, white, scurfy when young, scored at full growth, about 1 inch high, thick as a goose quill.

Ag. lignorum. Schæff. In clusters of slow growth. On the stump of a tree sawn off horizontally. Nov.

Var. 2. Gills quite white, much smaller than the preceding and growing on the ground.

GILLS loose, but the edges making impressions on the stem, white, semi-transparent, yellowish with age, in pairs.

PILEUS cylindrical, or rather egg-shaped, extending half way down the stem, brown yellow, scored, frosted, uneven at the edge, 2-8ths to 3-8ths of an inch high.

STEM hollow, white, woolly, ½ to 1 inch high, thinner than a crow quill.

RAY *Syn.* p. 10. n. 53. *Ag. fuliginosus.* HUDS. 620. *Schæff.* 308, very much resembles it, except in having yellowish gills and a solid stem. *Bull.* 94. not unlike it, but 4 times as large, and the gills 4 in a set.

Gills turning black with age. *Pileus* oblong, never turned up, not described since the time of RAY.

Several hundreds growing together on short grass under trees. Pear-tree Walk, Woolhope, Herefordshire. Mr. STACKHOUSE.

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* But pressed close to the stem, and even adhering to it by their edges in a young state so as not to be separated without injury to the one or the other, but still they are neither decurrent nor fixed, the former implying an extension of the base of the gill down along the stem, the latter an adhesion of the base or shoulder to the stem. This adhesion of the edge of the gill to the stem takes place only in such as have almost a cylindrical pileus, and it separates as the plant arrives at maturity.

Not uncommon. Mr. WOODWARD. Among short grass, plentiful, Edgbaston Park. 6th Aug.

*Var. 3. Gills white, brown when old, 4 in a set: pileus rich olive: stem brown.

Bolt. 154.

GILLS loose, white, turning brown with age, tough, flexible, distant, 4 in a set.
PILEUS conical, rich olive, darkest at the top, edge scored and turning up when old, 1½ inch to the apex.
STEM hollow, dusky reddish brown, tough, 2 inches high, thick as a raven's quill. BOLTON.
Ag. pseudo-clypeatus. Bolt. On stumps of fallen trees. Oct.

Var. 4. Gills brownish white, changing to reddish brown; uniform: pileus scored, light brown, yellowish and smooth at top.

GILLS loose, numerous, uniform, watery brownish white, changing to reddish brown, and then to dark chocolate.
PILEUS light brown, deeply scored, smooth and yellow brown at the top, cylindrical, edge irregular, rather turned in, ¾ inch high, broad at the top.
STEM hollow, white, 1½ inch high, thick as a raven's quill.
Pasture land, Edgbaston, in clusters. July.

AG. (BULL.) Gills white, with grey edges, 2 or 4 in a set: pileus conical, brown buff, sides furrowed: stem white, smooth. congregatus.

Bolt. 54, *the small figures—Bull.* 437. 2-94, *too smooth and too yellow for our specimens.*

GILLS loose, white, edges grey, spangled, 2 or 4 in a set; black with age, and deliquescent.
PILEUS conical, brown buff, apex a darker brown, surface strongly streaked, or rather furrowed, edge very uneven, bending in towards the stem, 1½ to 2 inches over.
STEM hollow, white, scurfy when young, splitting, 2 to 3 inches high, ¼ inch diameter.
M. Bulliard justly observes that the edge of the pileus hangs down lower on one side than on the other.

Ag. striatus. Bolt. In clusters, on the milking bank, Edgbaston, in a hollow where an elm had been fallen, 31st Oct. The crops repeated in the same season. In a similar situation in the Grove, 14th April. Poultry yard. Aug.

*Var. 2. Gills white, black on the edges, wholly black when older, 4 in a set: pileus and stem downy.

Bolt. 156—*Bull.* 138—*Mich.* 73. 3.

Gills loose, white on the sides, but with a black powder at the edges, which soon extends over the whole surface.

Pileus grey, downy; but this covering, tearing as it expands, remains in patches on the surface, which then appears elsewhere white and striated; conical, blunt, $1\frac{1}{4}$ inch high.

Stem hollow, covered like the pileus with a lead-coloured down, cylindrical, $2\frac{1}{2}$ inches high, thick as a raven's quill. BOLTON.

Ag. tomentosus. Bolt. Amongst wet moss on a peat bog near Ogden Kirk.

mica'ceus. AG. Gills white, changing to grey black: pileus pale yellow brown, spangled, conical: stem white.

Bull. 246, *and* 565—*Schæff.* 17—*Fl. dan.* 1193.

Gills loose, white, but soon changing to grey and almost to black, very numerous.

Pileus pale yellow brown, more yellow at the top; conical, bossed when fully expanded, streaked and glittering, as if strewed with minute spangles; $1\frac{1}{4}$ inch from the edge to the apex.

Stem hollow, white, cylindrical, 3 or 4 inches high, nearly as thick as a goose quill.

The whole plant is tender and the gills dissolve into a dark-coloured liquid.

Ag. fuscescens. Schæff. *Ag. micaceus.* Bull. Wet meadows. Oct.

fla'vipes. *AG. Gills brown white: pileus brown white, centre darker, bluntly conical, streaked: stem yellow.

Schæff. 31.

Gills loose, brown white, 4 in a set.

Pileus brown white, bluntly conical, scored, apex red brown, $\frac{1}{2}$ to 1 inch diameter.

Stem hollow, bright yellow, cylindrical, $2\frac{1}{2}$ inches high, thick as a raven quill, tender and brittle. SCHÆFFER.

Ag. plicatilis. Schæff. Headington Wick close, Oxfordshire. Dr. SIBTHORPE. Oct.

luteo-al'bus. AG. (BOLT.) Gills white, 4 in a set: pileus yellow, conical, scored: stem pale yellow.

Bull. 260—*Bolt.* 38. 1, (*excluding the other synonyms.*)

Gills loose, broad.

Pileus $\frac{1}{4}$ of an inch from the edge to the top of the cone.

STEM 1 inch high, thick as a bristle. BOLT. *Gills* very thin, broad next to the stem. *Pileus* bright yellow, thin, brittle, splitting, glossy. *Stem* hollow, delicate, Mr. STACKHOUSE. Mr. BOLTON tells me that the stem of his plant is solid, and if so, it must be separated from the figure of Bulliard and the description of Mr. Stackhouse, and may possibly prove to be a variety of the Ag. clavus.

Ag. pumilus. Bull. *Ag. luteo-albus.* Bolt. Common in woods near Halifax. [Short grass at Powick near Worcester. Mr. STACKHOUSE.]

Var. 2. Gills yellow white: pileus dark green: stem green.

GILLS loose, yellowish white, 4 in a set.

PILEUS dark green, scored, paler at the edge and at the top, cylindro-convex, blunt, 3-8ths of an inch high.

STEM hollow, dark green, 1½ inch high, thick as a large pin.

Lord Aylesford's Park at Packington; on rotten wood.
Autumn.

(2) GILLS brown.

AG. Gills red chesnut: pileus a tall slender cone, white: co'lus. stem white.

Sowerby 33: upper figure.

GILLS loose; uniform; deep Spanish snuff colour, numerous, tender.

PILEUS dead white, near an inch high, almost cylindrical; not more than ¼ of an inch diameter, except at the edge which flanches out a little; rounded at the apex.

STEM with a fine hollow, white, cylindrical, 3 inches high, thick as a crow quill.

This is a very beautiful and rare species. Its texture tender, soon crushing and becoming watery when gathered.

A single specimen on the grass plats at Tettenhall, Staffordshire, June; and another in a pasture field, Edgbaston.
August, 1792.

Var. 1. Pileus buffy white, expanded at the edge: stem bulbous at the base.

Sowerby 33—Bull. 563. 1; but the pileus not exact to the colour of our specimens.

GILLS loose, in pairs, cream coloured when young, changing to buffy brown or Spanish snuff colour.

PILEUS dead buffy white, conical, ¾ of an inch high, ½ an inch diameter, blunt at the top, flanched out at the edge, and crumpled, but smooth at the very edge.

STEM white, with a very fine hollow, 2 to 2½ inches high; bulbous at the base, thick as a raven's quill.

Ag. conocephalus. Bull. *Ag. tener.* Sowerby, Pastures, Edgbaston.
6th Aug. 1795.

atro-ru'fus. AG. (SCHÆFF.) Gills reddish brown, few, 4 in a set: pileus dark brown, convex, centre conical: stem brown, cylindrical, elastic.

Schæff. 234—*Bolt.* 51. 1.

GILLS loose, broad, red brown.

PILEUS conical, apex rounded, smooth, dark red brown, $\frac{1}{4}$ to $\frac{1}{2}$ inch high.

STEM hollow, brown, shining, rather strong, disposed to split, $1\frac{1}{4}$ to $1\frac{3}{4}$ inch high, a good deal thinner than a crow quill. *Root* rather bulbous.

Ag. atro-rufus. Bolt. Ray *Syn.* p. 8. n. 43. Dry barren pastures, amongst moss. Grass plats at Tettenhall, Staffordshire.
Spring—Aug.

Var. 2. Pileus deep yellow at the edge.

In Packington Park.

nu'ceus. *AG. (BOLT.) Gills pale brown, broad, thin, 4 in a set: pileus red brown, edge lobed and turned inwards: stem white.

Bolt. 70—*Bull.* 535. 1.

GILLS loose, gently waved at the edges.

PILEUS size and colour of a Spanish nut, dimpled at the top, dry, pliable, smooth, silky, shining: the margin lobed and very much rolled in, so as to touch the stem or even to pass by it, the opposite lobes pressing against, or crossing each other.

STEM hollow, dead white, thin, tender, splitting, 4 inches high, thick as a crow quill. BOLTON.

Ag. foraminulosus. Bull. *Ag. nuceus.* Bolt. Among young firs, abundantly. In dry and barren soils amongst heath and furze bushes.
Oct.

corruga'tus. *AG. Gills pale brown, 4 in a set: pileus brown, convex, crumpled: stem white, crooked, tapering upwards.

GILLS loose, shallow, wide apart.

PILEUS brown, clothy to the touch, skinny, crumpled and twisted, $1\frac{1}{2}$ inch over.

STEM hollow, white, crooked, tapering upwards, several united together at the bottom. Description and drawing from Mr. STACKHOUSE. *Curtain* sometimes remains hanging on the edge of the pileus.

Packington Park.
Autumn.

Ag. Gills brown pink: pileus brown pink, conical; stem brown pink. rubia'tus.

Gills loose, brown pink, narrow.
Pileus brown pink, clothy, conical but flat topped, near 1½ inch from the edge to the apex.
Stem hollow, brown pink, clothy, cylindrical, gently waved, 4 inches high, 3-8ths of an inch in diameter.

The whole plant is coloured as though it had been dyed with Madder.

In the Earl of Aylesford's Park, at Packington. Autumn.

Ag. (Bolt.) Gills dusky brown, 4 in a set: pileus cinnamon colour, conical: stem brownish, cylindrical, smooth. cuspida'tus.

Bolt. 66. 2.

Gills loose, pale dusky brown, thin, pliable, 4 in a set.
Pileus reddish brown, acutely conical, silky, smooth, even at the edge, 1 inch to the apex.
Stem hollow, the perforation fine; brownish, cylindrical, smooth, hard, readily splits, 4 or 5 inches high. Bolt.

Ag. cuspidatus. Bolt. Where weeds or charcoal have been burnt.

Var. 2. Gills buffy brown: pileus bluntly conical, buffy brown; stem very long and slender, buffy brown.

In Lord Aylesford's Park at Packington.

Ag. Gills brown numerous, 4 in a set; claws white: pileus buff, flattish: stem long. xylo'pes,

Gills loose, dead brown, numerous, tender, watery, thin, termination next the stem not in contact with it, white.
Pileus full buff, nearly flat, central part wrinkled and somewhat bossed, thin at the edge, turning watery on the least bruise; 1 to 2 inches over. *Flesh* thin, woolly or spongy, brown white.
Stem hollow, the cavity fine, with more or less of a white pith; brownish white, rarely straight, cylindrical, but thicker and scored under the pileus, and again much thicker towards the root, size of a raven to that of a small goose quill, 4 to 5 inches high.

Ring thin, ragged, brown white. *Root* a large irregular shaped mass, covered with white cottony substance, which extends also about ½ an inch up the stem.

Fir plantations at Barr. 28th June, 1792.

Ag. Gills cool brown: pileus pale yellowish brown, contin'gens.

widely conical, apex orange brown: stem white, silky, cracking.

GILLS loose, but touching the stem, cool brown, not broad, 4 in a set.

PILEUS widely conical, thin, pale yellowish brown, rather bossed and orange brown at the top, about 3 inches over.

STEM hollow, white, silky, cracking, 3 to 4 inches high, $\frac{1}{4}$ inch diameter, cylindrical, somewhat crooked.

In the Earl of Aylesford's Park at Packington. Autumn.

mutabi'lis. **AG.** (SCHÆFF.) Gills tawny, 4 in a set; pileus brown orange, convex, bossed: stem red brown below, scurfy, white above the ring.

Schæff. 9: *the lower figures.*

GILLS loose, yellow brown, 4 in a set.

PILEUS brown, orange, or dull yellow, but changeable; 1 to $1\frac{1}{2}$ inch over.

STEM hollow, cylindrical, red brown and scaly below, the scales pointing upwards, whitish above the ring.

Curtain thready. *Ring* permanent, imperfect. SCHÆFFER. *Gills* not so closely set as in the Ag. fascicularis, and also different in colour. *Pileus*, its varying form seems effected by the close and fasciculated growth, which in their tender state obtrude one upon another, as in the fascicularis. Major VELLEY. Schæffer's tab. 9, and also his description good. *Pileus* very much varying in shape and often deformed. Mr. WOODWARD. Schæffer's t. 9, contains 2 distinct plants, one with a hollow and one with a solid stem: one with a permanent ring and one without.

Ag. mutabilis, Schæff. On decaying wood, common. Mr. WOODWARD.—At Edgbaston, on rotten wood. Aug.

ti'tubans. **AG.** Gills red brown, in pairs: pileus yellow, conical, expanding: stem yellow.

Sowerby 128-*Bull.* 425. 1; *but stiff, too strongly streaked and harshly coloured. pl.* 595. 2, *is nearer to our specimens.*

GILLS loose, reddish brown, narrow, in pairs.

PILEUS conical, wide at the base, pale yellow, darker in the centre; edge striped with purplish brown, or rather mottled by the gills: about 1 inch high; flat and turned up with age.

STEM hollow, yellow, $2\frac{1}{2}$ to 3 inches high, thick as a raven quill.

Whole plant very weak. It has a very strong and highly disagreeable smell.

Ag. titubans. Bull. In Packington Park, Warwickshire. Autumn.

(3) GILLS red.

AG. Gills loose, pinky, fleshy, 4 in a set: pileus and stem pinky. auran'tius.

Var. 4. Ag. aurantius, see page 297.

AG. Gills pinky, uniform: pileus white, cylindrical, scaly: stem cylindrical, white. cylin'dricus.

Sowerby 189—*Fl. dan.* 834—*Curt.* ii. 16—*Schmid. ic. t.* 10—*Schæff.* 46, 47. 8—*Bolt.* 44.

GILLS loose, distant from the top of the stem, numerous, white when very young, when in perfection pinky; changing to black and dissolving, uniform.

PILEUS cylindrical, white, covered with scurfy scales, splitting at the edge, 4 inches high, 1½ or 2 inches diameter. *Flesh* none.

STEM hollow, pithy, white, cylindrical, tender, 4 to 8 inches high, ½ inch diameter.

Curtain small, white, connecting the pileus to the stem in its younger state, and leaving a *Ring* on the stem, loose, permanent.

This beautiful but fugacious plant has been extremely well figured by the authors cited above, but our best English botanists have fallen into an error in supposing it to be the Ag. fimetarius of Linnæus, as will be evident to those who will take the trouble to compare the figures or the descriptions. That has white gills, changing to black, this fine pink or rose red; that is egg-shaped, this cylindrical; that grows on dunghills, this in open pasture land.

A young plant put into water and covered with a glass bell, grew three inches and a quarter in twelve hours. In decay it deliquesces in form of a dark-coloured fluid hanging in drops on the gills. The outer white coat of the pileus is sometimes so thin as to allow the inner pinky colour to appear through it, especially towards the bottom of the pileus.

Ag fimetarius. Curtis. *Ag. porcellaneus.* Schæff. *Ag. fimetarius.* Bolt. *Ag. comatus.* Fl. dan. Amongst rushes, 17th Sept.—In an open pasture field, 2d May.

Var. 2. Gills fine red: pileus white and downy, soon changing to red: ring permanent.

Bolt. 142.

GILLS loose, uniform, carnation coloured.

PILEUS at first white, downy; this white down disappears and the surface becomes striated and of a livid carnaion colour: cylindrical when young, bluntly conical and turning up with age, 1½ inch from the edge to the apex.

STEM hollow, white, splitting, tapering upwards, 3 inches high, 3-8ths diameter. *Ring* near the bottom of the stem white, permanent. BOLTON. It principally differs from the preceding in the abrasion of the white downy outward coat of the pileus, which may be merely accidental, and then from the extreme tenuity of the inner membrane the red of the gills becomes visible.

Ag. oblectus. Bolt. On new dunghills, but rare. In the garden field at Edgbaston. 24th July.

*Var. 3. Gills pinky, uniform: pileus light brown, mottled, conical.

Bolt. 26—*Battar.* 26. *D. E. F.*

GILLS loose, distant from the top of the stem, pale pinky grey, uniform, numerous, broad, dissolving.

PILEUS conical, very uneven at the edge, light brown, set with fragments of a very pale grey brown cottony wrapper, which inclosed the pileus only in its young state; 1¼ inch from the edge to the apex.

STEM hollow, white, shining, 3 or 4 inches high, thick as a goose quill, often remaining after the decay of the pileus. BOLT. Common in dry vaults, poor cottages and under carpets on ground floors. Mr. Bolton's figure and description very just, but he has delineated one of the largest of the species. Mr. STACKHOUSE.

Ag. domesticus. Bolt. In clusters on wet rotten wood in cellars and damp kitchens.

appendicula'tus. AG. (BULL.) Gills brown red to chocolate, 4 in a set: pileus pale buff, conical: stem white.

Bull. 392. *B.*—*Schæff.* 237.

GILLS loose, flesh red, liver colour or chocolate with age, numerous, 4 in a set.

PILEUS a broad blunt cone, pale buff, centre darker; the whole darker with age, semi-transparent, 1½ inch over, cracking at the edge and becoming striated as it expands.

STEM hollow, white, splitting, cylindrical, smooth, 1½ to 2 inches long, thick as a raven's quill.

Curtain white, delicate, fugacious, hanging in fragments at the edge of the pileus, but soon vanishing after it is gathered.

Growing in large patches, very much crowded together, so that it is rare to see the pileus uniformly expanded. Dissolves into a brown watery fluid. Bulliard's figure is a good representation of our plant, but larger, and the gills rather too much of a salmon colour. Schæff. 237, to which he refers, is surely a different species.

Ag. appendiculatus. Bull. *Ag. spadiceogriseus.* Schæff.
Cherry Orchard, Edgbaston. 27th Aug. 1791.

AG. (BULL.) Gills dull red, broad, numerous, 2 or 4 in a set: pileus dirty brown, conical, woolly: stem hollow, dirty white. lacrymabun'dus.

Sowerby 41—*Bull.* 525. 3. *and* 194.

GILLS loose, dirty, brownish red, liver coloured with age, close set, broad, speckled with black when old, exuding spontaneously a thin milky fluid, which when concreted forms the black specks.

PILEUS dirty brown, bluntly conical, flat and bossed when old, woolly, without flesh except at the top, edge turned in, 1½ inch from the edge to the top.

STEM hollow, dirty white, or paler brown than the pileus, 2 to 3 inches high, 2-8ths to 3-8ths diameter; splitting.

Curtain white, cobweb-like, many of its threads extending from the stem to the edge of the pileus. *Juice* like thin milk; not acrid. Specimen, description, and drawing from Mr. STACKHOUSE.

Ag. lacrymabundus. Bull. Common in the woods in Herefordshire, and sometimes in the open pastures.

AG. Gills pale flesh colour, mostly in pairs: pileus convex, brown, with net-work on the centre: stem watery white. reticula'tus.

GILLS loose, in contact but not connected with the stem, pale whitish flesh colour, moderately numerous, in pairs, with sometimes one of a third series intervening.

PILEUS brown, centre darker, convex, nearly flat when full grown, its central part covered with a kind of net-work rising considerably above the surface, ½ to ¾ of an inch over.

STEM hollow, watery white, scored, 1 inch high, thinner than a crow quill.

The net-work is of a firm cartilaginous texture, rather a darker brown than the rest of the pileus, and remaining perfect after the other parts of the plant are decayed and dissolved.

Edgbaston Pool Dam, very scarce. 6th Aug. 1791.

(4) GILLS buff.

AG. Gills buff, few, narrow, 4 in a set: pileus buff, conical, edge thin, turned in: stem buff. margina'tus.

Batsch. 207; (but as is usual with his figures smaller than our plants.)

GILLS loose, few, narrow, light buff.
PILEUS buff, leather-like, smooth, skinny or membranaceous at the edge, which is very much turned in, conical, bossed, the boss darker coloured: 1½ inch high. *Flesh* thick, white.
STEM hollow, buff, darker downwards, 4 inches high, thick as a goose quill. *Ring*, when present, cottony, brown buff.

Ag. marginatus. Batsch. Found by Mr. Relhan in Madingley Wood, and White Wood near Gamlingay. In the Park at Packington.

dryophyl'lus. *AG. (BULL.) Gills pale brown buff, broad, few, 4 in a set: pileus dead whitish colour, nearly flat: stem white, gently tapering upwards.

Bolt. 6—*Bull.* 434, (*with several variations in the colour of the stem and the pileus.*)—*Sowerby*, 127.

GILLS loose, faint dusky flesh-colour, soft, pliable, tender.
PILEUS convex, nearly flat when fully expanded, tender, watery, thin, 4 or 5 inches diameter.
STEM hollow, shining, gradually tapering upwards, sometimes twisting, splitting into fibres, surface irregular, 5 inches high, near ½ an inch diameter. BOLTON. *Pileus* when fully grown sinking in the centre.

Ag. repandus. Bolt. *Ag. dryophyllus.* Bull. Shady woods. Aug. Sept.*

Var. 2. Gills pale brown buff, numerous, irregular: pileus dark brown, flat, velvety: stem pale brown, short.

Bull. 434. *D.*

GILLS loose, pale brown or buff, numerous, irregular.
PILEUS dark brown, flat, centre depressed, surface velvety to the touch.
STEM hollow, pale brown, short. *Juice* milky, mild. Specimen and description from Mr. STACKHOUSE.

Coplar wood, near Hereford. Sept. 1791.

Var. 3. Gills nearly white: pileus reddish buff: stem reddish.

Bull. 434; upper figures.

GILLS loose, 4 or 8 in a set, nearly white, pretty closely set.
PILEUS flattish, unequally waved at the edge, 1 to 1½ inch over, reddish buff, sometimes streaked at the edge, dimpled in the centre.
STEM hollow, reddish, paler and thinner upwards, 2 inches high, thick as a raven's quill. *Root* crooked.

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* (Mr. Sowerby observes this to be a very common species, occasionally forming circles like *A. orcades*, E.)

Edgbaston Red Rock plantations, amongst rotten leaves. Sept.

AG. Gills pale buff, 4 in a set: pileus convex, pale buff, darker in the centre: stem light buff: root a knob. nodo'sus.

GILLS loose, pale buff, 4 in a set, not crowded.

PILEUS pale buff, centre rich brown buff, regularly convex, somewhat plaited at the edge, ½ an inch diameter.

STEM with a fine hollow, cylindrical, pale buff, 1½ inch high, rather thinner than a crow quill. *Root* a small hard knob.

In the Earl of Aylesford's Park at Packington, Warwickshire. Autumn.

*AG. Gills brown buff: pileus blue, convex: stem blue. ardosia'ceus.

Bull. 348.

GILLS loose, brown buff, 4 in a set.

PILEUS blue slate colour, convex, centre depressed, inverted when old, but the edge still turned down; 2½ to 3 inches diameter. *Flesh* white.

STEM hollow, grey blue, white at the bottom, tapering upwards; 4 inches high; thick as a goose quill. BULLIARD.

Ag. ardosiaceus. Bull. Pastures near Headington Wick copse. Dr. Sibthorpe. Sept.

(5) GILLS yellow.

*AG. Gills pale yellow, 2 or 4 in a set: pileus pale yellow, conical, dry, thin, tearing: stem compressed, twisting. fla'vus.

Bolt. 68.

GILLS loose, irregular, very broad towards the outer end, waved at the edges, tender, primrose colour.

PILEUS conical, pale yellow, dry, smooth, silky, shining, tearing as it expands in several places nearly to the centre; 3 to 4 inches over.

STEM hollow, splitting, often compressed, furrowed and twisted, 3 or 4 inches high, ½ inch diameter. BOLTON.

Mr. Bolton's name (*laceratus*) has been before applied to a different species, vide Scopoli n. 1513.

Dry banks and barren pastures about Halifax, but rare. BOLTON.

AG. (LINN.) Gills brimstone yellow, 4 in a set: pileus pale yellow, convex: stem yellow, cylindrical. eques'tris.

Bolt. 65. (*not Schæff.* 79.)

Ag. stipitatus, pileo pallido: disco luteo, lamellis sulphureis. Fl. suec. 1219. *Gills* pale sulphur colour, which readily distinguishes it. *Pileus* convex, pale, centre yellow and marked with a tawny star. *Stem* naked, smooth. Linn.

Gills loose, narrow, moderately numerous, thin, pliable, dull brimstone colour, uneven at the edge.

Pileus convex, cylindro-conical when young, pale yellowish buff, bright yellow at the apex, 1 to 2 inches over; very thin and semi-transparent, shewing the edge of the gills through, which gives it a streaked appearance.

Stem hollow, readily splitting, pale dusky yellow, sometimes quite white, 2 to 4 inches high, thick as a raven quill. Whole plant very tender and brittle.

Major Velley justly observes that this cannot be the 35th of Ray, which is the aurantius. *Gills* yellowish, unequal, distant. *Pileus* pale yellow, smooth, convex, gelatinous, transparent, shewing the insertion of the gills in a starry form round the apex, and the spot formed by the insertion of the stem forms the centre of the star. *Stem* long, tender, hollow. Mr. Stackhouse.

Ag. equestris. Bolt. Pastures, Edgbaston Park.
July, August.

*Var. 1. Broader and shorter. Curtain evanescent.

Bolt. 149—*Bull.* 563. 2.

Gills loose, yellow, white when young, dirty brown when old, 4 in a set, thin, tender.

Pileus yellow, convex, often somewhat raised in the centre, tearing at the edge when old, near 3 inches over.

Stem hollow, yellow throughout, smooth, splitting, 2 inches high, thick as a goose quill. Bolton.

Ag. flavidus. Bolt. On dunghills after rain. June, July.—Pastures near Bath. In Herefordshire and Worcestershire. Mr. Stackhouse.

veluti'pes. Ag. (Curt.) Gills pale yellow, 8 in a set: pileus brown orange, nearly flat: stem yellow above, velvety and dark brown below.

Curt. iv. 40—*Bull.* 344—*Vaill.* 12. 8. 9.

Gills loose, in contact with though adhering to the stem, pale yellow, 8 in a set.

Pileus gently convex, nearly flat with age, brown orange, gelatinous, irregular in shape, often curled at the edge, 1 to 3 inches over. *Flesh* yellowish.

Stem hollow, dark brown and velvety below, top yellowish, thickest downwards, splitting, yellow within, 2 to 4 inches high, 2-8ths to 3-8ths of an inch in diameter.

This has been confounded with Ag. sulcatus, well figured in

Bolton 135, but though very much alike at first sight, the structure is sufficiently different to prevent their being again mistaken.

Ray *Syn.* p. 9. n. 51. *Ag. mutabilis.* Huds. 615. 22, and Relh. 936, seem to be this plant, but on their authority, supported by that of Mr. Woodward, the mutabilis of Schæffer is introduced in its proper place.

Ag. nigripes. Bull. Varies very much in size; grows in clusters, many from 1 root, generally attached to rotten wood. Oct. April, not uncommon.

AG. Gills pale yellow: pileus yellow brown, with red streaks: stem light brown. cruenta′tus.

GILLS loose, pale yellow, 4 in a set.
PILEUS yellow brown with dark blood-red streaks, convex, rather bossed, 2½ inches over. *Flesh* very thick towards the stem, pale yellow.
STEM hollow, light brown, scored, cylindrical, 2½ inches high, near ½ inch diameter, spreading out at the top so as to form one substance with the pileus.

In the Earl of Aylesford's Park, Packington, Warwickshire. Autumn.

AG. Gills loose, yellow, 2, 3, or 4 in a set: pileus and stem pinky. auran′tius.

Var. 5. Ag. aurantius. See page 297.

(6) GILLS grey.

AG. (SCOP.) Gills silvery grey, uniform: pileus grey brown, plaited: stem white. ova′tus.

Curt. 101—*Schæff.* 67. 68—*Vaill.* xii. 10. 11—*Sowerby*, 188.

GILLS loose, in contact with but not fixed to the stem; silvery grey changing to black, very numerous, and so close set that it is hardly practicable to separate them; uniform, deliquescent.
PILEUS brown white or silvery grey, egg-shaped to bell-shaped, with remarkable plaits or folds extending from the edge nearly to the centre, from 3 to 4 inches over.
STEM hollow, white, brown at the base, tender, cylindrical, 3 to 4 inches high, 2-8ths to 3-8ths diameter, thickest downwards.

Mr. Curtis has discovered that the sides of the Gills are connected to each other by very fine filaments, which accounts as he observes for the difficulty of separating them. I suspect Mr. Lightfoot's Ag. plicatus to be a different plant, for he describes the gills as terminating short of the stem and leaving a vacant circle round the top of it.

RAY *Syn.* p. 5. n. 22. *Ag. striatus.* HUDS. 617. *Ag. fugax.* SCHÆFF. At the bottom of a gate post. 15th Oct.

consper′sus AG. Gills grey, uniform: pileus white beautifully frosted: stem white.

Bull. 542. 2.

GILLS loose, uniform, grey when full grown, but soon dissolving into a black liquor: quite white when young.

PILEUS watery white, but incrusted with beautiful white flakes; thin as tissue paper, very soon curling up and dissolving into a watery fluid, replete with black seeds: 1½ inch from the edge to the apex.

STEM hollow, tapering upwards, pure white, 5 inches high; thick as a raven's quill.

Ag. stercorarius. Bull. On dunghills and in poultry yards. June.

momenta′neus. AG. (BULL.) Gills grey, uniform: pileus grey, streaked: centre brown orange: stem white.

Fl dan. 832. 2—*Bull.* 128—*Battar.* 27. *D—Bolt.* 39. *C—Mich.* 75. 6.

When mature, it is perfectly horizontal on its stem: Mr. STACKHOUSE; but it hardly remains an hour in this state, the edge curls up, and it dissolves into a watery fluid containing an immense number of black egg-shaped seeds.

GILLS loose, in contact with, but not connected with the stem, grey, very fine and slender, uniform, sometimes split; when young white.

PILEUS conical, soon becoming flat, grey, centre brown orange, extremely thin, nearly transparent, edge uneven, 1 to 1½ inch over.

STEM hollow, beautifully white, cylindrical but rather tapering upwards, brittle, splitting, a little scurfy, 2 to 4 inches high, thick as a goose or a crow quill.

When fully expanded the gills and the pileus appear as if composed of the same substance, but examined in a younger state the gills are quite white and the pileus the colour of horn. The streaks on the pileus are only apparent, and caused by the upper edges of the gills being seen through the very thin membranaceous pileus.

Ag. radiatus. Bolt. *Ag. momentaneus.* Bull. *Ag. crenulatus.* Fl. dan. Pastures after continued gentle rain. Oct.—April.

*Var. 2. Gills grey, uniform: pileus tawny brown, strongly streaked: stem white.

Fl. dan. 1134. 2—*Bolt.* 54—*Schæff.* 201.

GILLS loose, uniform, grey, changing to black.
PILEUS egg-shaped, edge turned in, scolloped, reddish brown, 2½ inches from the edge to the apex.
STEM hollow, white, 5 or 6 inches high, ¼ inch diameter. BOLT.

Ag. rufo-candidus. Schæff. Single or in clusters; on the ground or on rotten wood.

AG. (SCHÆFF.) Gills grey, uniform, not reaching the stem: pileus grey, streaked, centre brown: stem white, tapering upwards. cine'reus.

Fl. dan. 1195—*Bolt.* 20—*Schæff.* 100 *and* 216.

GILLS terminating at some distance from the stem, tender, watery.
PILEUS grey, plaited, conical, 1½ to 2½ inches over.
STEM hollow, white, smooth, swelling below and tapering upwards like the flowering stem of an onion; 6 to 8 inches high, 1-8th to 3-8ths diameter. BOLTON.

Ag. fimetarius. Huds. 617. *Ag. pullatus.* Bolt. Rich meadows, or dunghills. June.

Var. 2. Gills 4 in a set: pileus semi-transparent: stem in appearance horny.

Bull. 88.

GILLS ending short of the stem, so as to form a channel round it, grey, broad, numerous.
PILEUS semi-transparent, smooth, but sometimes deeply furrowed, brown, flapping or hanging down at first, then turning up, tearing at the edge and then from its elastic nature the segments turning up.
STEM hollow, horny. This is well described by Bulliard, and though of such apparent firmness it dissolves into an inky fluid, the stem often surviving the destruction of the pileus. Mr. STACKHOUSE.

Ag. cinereus. Bull. Meadows and road sides. Powick near Worcester. Mr. STACKHOUSE.

Var. 3. Gills grey, in pairs, extremely narrow, not reaching the stem: pileus grey, conical, plaited, buff in the centre, patched with white pieces of the wrapper: stem white, tapering upwards.

GILLS loose, terminating at some distance from the stem, dark grey, very narrow, 2 or 4 in a set.
PILEUS grey, with white blotches, the remains of the wrapper, conical, 1½ inch high, centre light brown, or buff.

STEM hollow, white, covered with a beautifully white soft down, very tender, splitting, tapering upward, thick at the root, 7 inches high, thick as a duck's quill.

campanula'tus. *AG. (LINN.) Gills pale grey, uniform: pileus mouse grey, conical, blunt: stem grey, smooth.

Vaill. xii. 1. 2—(*Mich.* 75. 9, *referred to in Fl. Suec. is wholly white. This reference is rejected in Sp. Pl. but our English botanists supposing the fig.* 9, *the only error, quote Mich.* 75. 6, *but this is Ag. momentaneus, a much smaller plant, has a pileus flat when expanded, very thin, scored on each side, and a white woolly stem.*—*Schæff.* 31, *has a bright yellow stem, and gills* 4 *in a set.*)—*Schæff.* 211, *is, I believe, to be reckoned a campanulatus, varying chiefly in the gills being drawn in pairs, but whoever has attended to the inaccuracy with which the gills are drawn in these plates, will hardly think that an objection.*

Ag. stipitatus, pileo companulato striato pellucido, lamellis adscendentibus, stipite nudo. Sp. Pl.

Gills ascending, grey or black. (Gills white. Fl. lapp. 507. Fl. Suec. ed. i. 1054.)—*Pileus* grey, viscid, membranaceous, conical bell shaped. *Stem* naked, smooth, very long. LINN.—*Gills* uniform, white or very pale grey. *Pileus* mouse grey, conical, blunt, ¾ inch high. *Stem* hollow, grey, polished, 2 inches high, thick as a swallow's quill. VAILL. par. p. 71.

Meadows, pastures, and woods. Sept.—Oct.

*Var. 2. Gills whitish grey, turning black, uniform: pileus yellow brown, bell-shaped, blunt: stem greyish.

Schæff. 6—*Clus.* ii. 293, *bottom at the left hand*—*Dod.* 482. 1—*Lob. ic.* ii. 272—*Ger. em.* 1580. 2—*Park.* 1321. 19—*Vaill.* 12. 5. 6, *another variety, with gills in pairs*—*Battar.* 27. *E. Mr. Woodward.*

GILLS loose, uniform, pale grey and then black with dust.

PILEUS at first hemispherical, the edge tearing with age, ½ inch from the edge to the top.

STEM hollow, greyish, roughish, 1 to 1½ inch high, thick as a raven quill. SCHÆFF. HUDS. Very common on decaying stumps. *Pileus* shaped exactly like a woman's thimble, with a small dimple at the top; yellow brown streaked with black. *Gills* sooty grey, that is, powdered with black. Mr. WOODWARD.

Ag. aquosus. Huds. 619. Ray *Syn.* p. 7. n. 36. *Ag. truncorum.* Schæff. On wet rotten wood. Aug.—Oct.

AG. Gills brown grey to black, 2 or 4 in a set: pileus light brown, smooth, half egg-shaped: stem cylindrical, white. semi-ova'-tus.

Sowerby 131—*Bolt.* 53—*Bull.* 164, *varies a little from it, in having no appearance of a ring, and the pileus being scored*—*Fl. dan.* 1070.

GILLS loose, in contact with but not united to the stem, moderately numerous, 4 in a set, brown grey changing to black and deliquescing.
PILEUS light brown, or like ivory, polished, smooth, wrinkled when old like wash-leather, bluntly conical, or rather the shape of the broader end of an egg, 1½ inch from the edge to the apex, and as much across at the base. *Flesh* thin, white.
STEM hollow, white, smooth, cylindrical, pithy within, bulbous at the base, 5 inches high, thick as a goose quill. Hollow sometimes, very fine, and without pith.
Curtain evanescent. *Ring* seldom perfect.
Ag. atramentareus. Bull. *Ag. ciliaris.* Bolt. *Ag. bicolor.* Fl. dan. Cow pastures and dunghills. June—Sept.

Var. 2. Gills grey, mottled, 2 or 4 in a set: pileus pale brown, smooth, shape of half an egg: stem brownish, cylindrical.

Bull. 58.

GILLS loose, grey, mottled, turning black, broad, mostly in pairs, numerous, deliquescent, shorter gills narrow in proportion to the long ones, and often not extending to the edge of the pileus.
PILEUS brownish white, smooth, satiny, exactly the shape and about the size of the broader half of a hen's egg cut across in longer axis.
STEM hollow, cylindrical, brownish white, 2 to 3 inches high, thick as a crow quill.
Ag. papilionaceus. Bull. Edgbaston Park. 7th Nov. 1790.

AG. (CURTIS.) Gills grey, in pairs; pileus ash-coloured, centre brown yellow: stem white. plicat'ilis.

Bull. 542. *f.* 1—*Curt.* 200-*Batsch.* 2—*Battar.* 27. *B.C.*—(*Not Fl. dan.* 832. 2.)

GILLS loose, not reaching to the stem, grey or purplish grey, changing to black, semi-transparent, deliquescing, not numerous, in pairs.
PILEUS grey with a tinge of yellow, centre brown, yellow, conical, flat when expanded, edge at first turned down,

with age turning up, sides semi-transparent, plaited, centre with a small boss sunk in a hollow, ½ to 1 inch over, centre underneath white, fleshy.

STEM hollow, white, smooth, cylindrical, feeble, 2 to 3 inches high, thick as a crow quill.

Curtain very evanescent, its remains sometimes fringing the edge of the pileus.

Ray *Syn.* p. 9. n. 47. *Ag. ephemerus.* Bull. *Ag. virgineus.* Batsch.

This has been confounded with the *Ag. momentaneus*, but the gills being in pairs, and their approach to the stem limited by a fleshy circle in the centre of the pileus on the under side, are at all times sufficient to point out the difference.

Grass plats and new mown fields. April—Oct.

exara'tus. AG. Gills dirty grey changing to black, in pairs: pileus plaited and striped.

Bolt. 31—*Bull.* 80—*Schæff.* 32, *very nearly the plant.*

GILLS loose, in pairs, dirty grey or brownish, changing to black.

PILEUS conical, afterwards expanding, smooth at first, when expanded scored and plaited, alternately brown and lead-coloured; 1½ inch over. It dissolves the second day into a brown liquor.

STEM hollow, whitish grey, 5 or 6 inches high, thick as a swallow's quill. *Curtain* evanescent, its remains only appearing on the stem whilst very young. BOLTON.

Ag. campanulatus. β Huds. Ray *Syn.* 8. 41. *Ag. plicatus.* Bull. *Ag. campanulatus.* Bolt. Meadows, plentiful. Sept. Oct.

Var. 2. Gills 2 or 4 in a set: pileus, plaits regular, centre smooth, brown. Mr. STACKHOUSE.

cinc'tulus. *AG. (BOLT.) Gills dark blackish grey, 4 in a set: pileus brown bay with darker belts, conical; stem dirty brown.

Bolt. 162, (*not Schæff.* 48.)

Gills loose, dusky black, broad in the middle, tender, brittle. *Pileus* a broad blunt cone, red-deer colour, with a broad dark brown belt, which colour penetrates the whole substance: 2 to 3 inches over. *Stem* hollow, dull dirty brown, cylindrical, 3 inches high, nearly as thick as a goose quill. BOLTON.

Ag. suberosus. Bolt. On dunghills after rain. Pastures, South Leigh, Oxford. Dr. SIBTHORPE. June—July.

AG. Gills purplish grey, broad, 4 in a set: pileus widely conical, very dark brown: stem light grey, scored. rhomboide'us.

GILLS loose, grey with a purplish tinge, broad, shouldering up to the stem but not united to it, nearly rhomboidal in shape.
PILEUS very dark brown, shining, not viscid, cylindro-conical, bossed, uneven at the edge, 1 to 1 ½ inch high.
STEM hollow, light grey, cylindrical, scored, 2 to 2½ inches high, nearly as thick as a goose quill.
In the Earl of Aylesford's park; Packington, Warwickshire.
Autumn.

B. Stems lateral.

(1) GILLS white.

AG. Gills white, variously anastomosing; pileus white, semi-circular, downy: stem lateral, brown white, knotty. labyrinthifor'mis.

Schæff. 43 *and* 44, *resemble the plant, but the plate has more colour and the stem is less knotty.*

GILLS decurrent, white, variously anastomosing, and though generally parallel, sometimes assuming the form of circular or angular cavities like the pores of a Boletus.
PILEUS white, semi-circular, irregularly scolloped at the edge, covered with a short woolly down; 2 to 4 inches over. *Flesh* white.
STEM solid, 4 or 5 inches long, thickness of a little finger, tough, very knotty, dirty brownish white.
Plantations Edgbaston, on the ground amongst moss.
13th Sept. 1791.

AG. (BULLIARD.) Gills white to yellow brown, the long ones forked: pileus milky white, flat, thin. ses'silis.

Bull. 152—*Jacq. fl.* 288—*Bolt.* 72. 2.—*Pet. gaz.* 95. 8.

Wholly white, tender, brittle and pellucid; in figure nearly semi-circular, sometimes with three lobes. DICKSON.

GILLS fixed, mostly uniform, splitting, white, changing to brownish yellow.
PILEUS white as milk, flat, thin, half an inch over.
STEM, or more properly perhaps, Root, a blackish knobby substance.

Without a stem, growing by its side on rotten sticks, in hedges, Buckinghamshire, Mr. KNAPP.—From whom I first received specimens in the year 1787.—At first wholly white; in time the gills turn yellowish, and in a dry season the whole plant dries and turns black before it decays. Mr. WOODWARD. —*Gills* set extremely fine, unequal in length, pale brown, narrow. *Pileus* snow white, powdery, convex, when young, flat and the edge deflected with age; thin, tough. The whole springs from a kind of pedicle, and never exceeds the size of a sixpence. Mr. STACKHOUSE.

Ag. niveus. Jacquin and Dickson; but that name had been given before to a well-established species.

Ray *Syn.* p. 22. n. 8. *Ag. sessilis.* Bull. *Ag. flabellatus.* Bolt. On rotten sticks, &c. under hedges, frequent.

ostrea'tus. AG. (JACQ.) Gills white, irregular, long ones often branched at the base: pileus brown, smooth, thin, and wrinkled at the edge.

Curt. 216—*Jacq. austr.* 104.

GILLS fixed, whitish, of various lengths, the long ones often forked towards the base and anastomosing.

PILEUS brown, smooth, rather shining, thin and wrinkled at the edge, from 1 to 8 inches broad, from 2 to 10 inches long or more. *Flesh* white, tough.

STEM, or rather root, solid, tough: penetrating deep into the crack of the beech tree, on which it grew.

Very much resembling the shape of an oyster, but hollowed underneath. It has a faint sickly smell.

Mr. Woodward suspects that this in a more advanced age may be the Ag. conchatus.

Near Ditchingham, Norfolk, on decayed ash. Mr. WOODW. In clusters of 5 or 6 or more on willow, or elm. Mr. STACKHOUSE. —In a cleft in the bark of a large beech, near the root; Edgbaston Park. Dec.—Jan.

Var. 2. Proliferous.

Gills pure white, unequal. *Pileus* dark olive colour, leathery, thin; edge turned down. It rises from a sort of pedicle, from whence 1, 2, 3, or more misshapen lobes proceed. From these lobes other little lobes come forth. Description and drawing from Mr. STACKHOUSE.

Powick, near Worcester.

glandulo'sus. AG. Gills white, their sides studded with globular glands: pileus dark brown: stem lateral, white.

Bull. 426.

GILLS white, very decurrent, studded with globular glands, which when dissected out and magnified appear like prickly balls.

PILEUS rich dark brown, very large. Mr. Relhan measured one which was 18 inches by 14. *Flesh* very thick, white.

STEM lateral, very short, white. **BULLIARD.**

M. Bulliard tells us it grows on large trees, and on stumps of trees towards the end of autumn and in winter. Mr. Relhan found it at Babraham near Cambridge, and communicated this discovery to me.

Ag. glandulosus. Bull.

*AG. (SCHÆFF.) Gills whitish, branched: pileus red brown and grey, semi-circular, convex, scaly, fleshy, turned in at the edge: stem lateral, whitish. dimidia'tus.

Schæff. 233.

GILLS fixed, only branched near the edge of the pileus.

PILEUS greyish with reddish brown scales, 1½ inch by 2½.

STEM solid, inversely conical, fixed to the side of the pileus, full ½ inch long, and about as much in diameter.

This differs from the Ag. ostreatus in being solitary, the pileus scaly, the gills not decurrent, branched towards the margin only, and not anastomosing at the base. It differs from the Ag. betulinus in being fleshy, convex, the margins inflected, and having a short stem. Mr. **WOODWARD.**

Ag. campestris. Schæff. On an old ash at Ditchingham. Mr. **WOODWARD.**

(2) GILLS brown.

AG. (BULLIARD.) Gills rich brown, extremely numerous and irregular: pileus brown, shining, glutinous, the edge greatly turned in. concha'tus.

Bull. 298.

GILLS decurrent, rich brown, very numerous, of every varying length from 7 inches to less than ½ an inch.

PILEUS brown, rather shining and glutinous, convex, or concave, edge rolled inwards and downwards, 7 inches from the root to the outer edge, and nearly as much in breadth, but its various contractions make its shape very irregular. *Flesh* thick, brown white.

STEM solid, short, thick, brown.

Ag. conchatus. Bull. Edgbaston, on large trees.
3d Aug. 1791.

aurantioferrugin'eus. AG. Gills orange brown, not numerous, irregular: pileus orange brown, nearly circular: stem yellow brown, between central and lateral.

GILLS fixed, orange brown, thin, not very numerous, of 3 or 4 different lengths, not at all decurrent.

PILEUS orange brown, dry, scaly, and cracking; convex, nearly circular from 3 to 5 inches over. *Flesh* yellow.

STEM solid, more yellow than the pileus; 1½ to 3 inches long, ½ inch diameter, sometimes swelling out into a globular substance near the gills; lateral in the large, but nearly central in some of the smaller specimens.

Grows in clusters, is of a rich orange brown, and throws out a great quantity of seeds from its gills, of the same colour. It connects the agarics with central stems with those which have lateral stems.

At the foot of an oak gate post on the side of the Birmingham road near to Hales Owen. Oct.

palma'tus. *AG. (BULL.) Gills red brown, 4 in a set, but irregular: pileus deeper, brown red, flat, oblong: stem reddish white, eccentric.

Sowerby 62—*Bull.* 216.

GILLS, long ones terminating on a membrane which prevents their adherence to the stem; few in number, very irregular. BULLIARD. Unequal, lighter coloured than the pileus.

PILEUS brown red, flat, membranaceous, edge turned down.

STEM solid, strong, inserted near the edge of the pileus. Substance very leathery and tenacious. The place of growth is very particular, viz. on the perpendicular side of a post, out of a knot in the solid undecayed wood, pointing first horizontally and then turning upwards. Description and drawing from Mr. STACKHOUSE. M. Bulliard says it is found in Autumn on the squared sides of timber, and also on trees both healthy and decayed, at the height of 60 or 80 feet. In Mr. Stackhouse's drawings the pileus is about 1½ feet or 2 inches over; the stem about 1 inch high, and ¼ diameter, but the figures of M. Bulliard are much larger, and more of a brown colour.

pla'nus. *AG. (BOLT.) Gills mouse brown, thin, pliable, 4 in a set: pileus mouse brown, flat, with narrow stripes near the edge.

Bolt. 72. 3.

GILLS fixed, 4 in a set, spear-shaped, soft and tender.
PILEUS smooth, semi-circular, brownish mouse colour, marked near the edge with 3 or 4 narrow concentric lines of a darker colour; waved at the edge, near 1 inch broad and something more in width.
STEM solid, very short, more properly perhaps to be considered as a root. BOLTON.

Bulliard 140, seems a variety of this.

Ag. planus. Bolt. Grows upright on the ground. Oct.

*AG. Gills yellowish brown, numerous: pileus smooth, mealy, whitish: stem short, variably eccentric. flabelliformis.

Sowerby 109—*Schæff.* 208.

GILLS decurrent, mostly uniform, light yellowish brown.
PILEUS smooth, tough, leathery, mealy, whitish, with deep rust coloured tints near the stem, set upon the stem like a leaf upon its stalk, but sometimes more central, and turned up like a funnel; 1 to 1½ inch over, the edge cut into irregular segments.
STEM solid, dark brown, ¼ to ½ inch high, thick as a crow quill.

Drawing and description from Mr. STACKHOUSE.

Ray *Syn.* p. 25. n. 23. *Ag. semipetiolatus.* Schæff. Stumps of oaks, Aldenham, Salop. Hazle stumps, Powick, Worcester; frequently growing in clusters.

* Var. 2. Pileus about ¾ of a circle, 1 inch diameter, entire at the edge.

Bolt. 71. 2—*Vaill.* 10. 7—*Buxb.* v. 10. 1. 2.

Grows single or tiled; of a dry leathery substance, a smooth surface, and either a white or dull pale yellowish colour.

GILLS 4 in a set, but irregular, narrow, short ones numerous.
PILEUS smooth, clothy.
STEM scarcely any. Mr. STACKHOUSE.

Ag. semipetiolatus. LIGHTFOOT. *Ag. lateralis.* HUDSON. *Ag. lateralis.* Bolt. On decayed branches of trees.
Aug.—Dec.

*AG. (DICKSON.) Gills ochre coloured, 8 in a set: pileus whitish, convex, variously shaped, almost gelatinous. mollis.

Schæff. 213—*Batsch.* 38—*Sowerby* 98.

An inch or two in length, and half as much in breadth. Stem none. The whole of this Agaric is very soft and tender, so much so as scarcely to bear handling. *Pileus* pale brown or dirty white, simple or variously lobed, waved or wrinkled. *Gills* pale yellow. Mr. WOODWARD. *Stem*, or more properly perhaps *root*, a small dark coloured substance.

Ag. mollis. SCHÆFF. *Ag. vulneratus.* BATSCH. In the pine grove at Kirkby, on moss.

ficoi'des. AG. Gills watery brown, 4 or 8 in a set: pileus light yellow brown, surface cracked: stem short, light brown, clothy.

Batsch. 122—*Bolt.* 72. *f.* 1—*Bull.* 557. 1, *very like it.*

GILLS fixed to the stem, watery brown, 4 to 8 in a set, connected by numerous cross threads.

PILEUS light yellowish brown, shewing in the cracks a darker ground, like the surface of a dried fig, from ¼ to 1½ inch diameter, concave in the centre, edge turned down; sometimes rolled in, sometimes plaited like a cockle shell. *Flesh* whitish brown.

STEM lateral, short, hardly ¼ to ½ inch long and half that in diameter; thickest upwards, light brown, clothy, solid. *Flesh* reddish brown.

Ag. stypticus. Bull. *Ag. betulinus.* Bolt. *Ag. depluens.* Batsch. On an alder stump in considerable quantities adjoining to the west end of the large pool in Edgbaston Park.
Nov.—Jan.

resupina'tus. AG. Gills light brown: pileus light brown, flat: stem very crooked, eccentric.

Batsch. 124.

GILLS loose, light brown, mostly 4 in a set.

PILEUS light brown, flat, thin, about ¼ of an inch diameter, generally reversed.

STEM solid, eccentric, crooked, shorter than the diameter of the pileus.

Ag. Flurstedtiensis. Batsch. Not Ag. *resupinatus* of Fl. dan. On rotten wood overgrown with short moss in Packington Park.
Autumn.

(3) GILLS buff.

renifor'mis. AG. Gills pale buff, 4 in a set: pileus bright brown, kidney-shaped, curled and waved at the edge.

Bolt. 157.

Gills decurrent, tough, flexible, moderately broad, pale buff, darker when old, and sometimes scolloped at the edges.
Pileus bright brown or red deer colour, darker towards the stem, tough, fleshless, smooth like vellum, 1½ inch by 2½.
Stem ¼ of an inch in length, and as much in breadth. **Bolton.**

Not Schæff. 43, 44; nor Mich. 65. 1.

Ag. flabelliformis. Bolt. Grows on the side of old trees. Feb.

Ag. Gills yellowish, mostly in pairs, broad, wide apart: pileus dirty buff, convex, edge turned in. fæ'tidus.

Gills fixed, brown yellow, gelatinous, mostly in pairs.
Pileus convex, dirty brown buff colour, edge much rolled in, surface greatly wrinkled when old, clammy, 1½ to 2½ inches over.
Stem hard, thick, blackish, not ½ an inch long; it is perhaps rather a root than a stem.

This has not been described. Its form is rather elegant, swelling out from the root-like stem into an oblong circular form, and raised like a cushion. The inside is gelatinous and has an unpleasant smell. Several plants, viz. from 1 to 7, grow from one root, tiled one over another. Specimen, drawing, and description from Mr. **Stackhouse.**

On the bark of willow trees, Powick, near Worcester.

C. STEMS none.

Ag. Gills grey, 2 to 4 in a set, limber, diverging from the centre of the plant: pileus dark brown grey, rather convex. applica'tus.

Ag. acaulis inversus orbicularis cinereo-nigricans, lamellis in centro contingentibus, albido cærulescentibus. **Dickson.**

Batsch. t. 24. f. 125.

Plant sitting, fixed by the top of the pileus, circular or oblong, 1 inch diameter.

Ag. applicatus. Batsch. On rotten wood. [Earsham, Norfolk. Mr. **Woodward.** Willow trees, Powick, near Worcester. Mr. **Stackhouse.**]

Ag. (**Linn.**) Gills reddish yellow, to reddish brown, numerous, thin, very much branched: pileus pale brown buff, cottony; irregularly semi-circular. betulinus.

Ag. acaulis, coriaceus villosus, margine obtuso, lemellis anastomosantibus. *Fl. suec.*

Sowerby 182—*Bull.* 346. *the four lower figures*—*Bull.* 394 —*Bolt.* 72. 1—*Buxb.* v. 6—*Fl. dan.* 776. 1—*Bull.* 537, *seems to represent specimens of this and also of the Ag. quercinus.*

Gills in the younger plant 4 in a set, light brown, sometimes branched.

Pileus thin. when young fixed to the wood on which it grows, the gills being uppermost; it then separates from the wood and turns up, as is more particularly explained in speaking of the Ag. quercinus. This, now upper part, is brown, or greenish, and woolly, consisting of concentric circles formed in ridges. It is apt to contain blades of grass, or bits of sticks, perforating its substance, which only could have happened in its soft state.

Stem none. Rather leathery than fleshy; belts variable, some more woolly.

Gills firm, seldom inosculating. Linn. *Pileus* always villose, and marked with concentric circles. *Gills* irregular, variously branched, but not forming lacunæ as in the Ag. quercinus. Bulliard 394 belongs to this species, and probably Schæff. 57. It has been confounded with the Ag. quercinus, by supposing it to be that species in its young state. Mr. Woodward. *Lobes* elliptical, tiled, from 1 to 2 inches over, chesnut brown, in shades with concentric wavy circles, very velvety to the touch, of a woody substance. *Gills* shallow, whitish, thickish, rigid, not emitting seeds when lying upon paper. In its young state it is gelatinous like a Boletus. Mr. Stackhouse. This species has been involved in much confusion, chiefly arising from its different appearance at different ages. Mr. Stackhouse sent me a young plant in its gelatinous state, which accorded, as he observed, with Fl. dan. 776. 1; the pileus being white and the gills a rich deep saffron colour. Bulliard 346, the lower figures, seem the same plant when it has just attained its firm texture; the colour of the gills darker and more of a purple cast. The other figures represent the plant in its older states, and of very different sizes, the colour of the gills being then a reddish brown, and the pileus somewhat paler but with wavy circular streaks of a darker hue. The figures in Bulliard 394 are very exact representations of the specimens now before me. It sometimes grows to the size of one's hand, enlarging by proliferous offsets from the edges, each offset having its own proper central point to which its gills are directed; but in this case the gills in the centre of the aggregate plant become extremely convoluted and irregularly branched.

Ray *Syn.* p. 24. n. 19. *Ag. betulinus.* Bolt. Fl. dan. Trunks and stumps of trees, not uncommon.

Var. 2. Pileus green.

Bolt. 158.

Probably only old specimens of the preceding, the green colour occasioned by some other yet undetermined parasitical vegetable.

Ag. coriaceus. Bolt. On old pales. Jan.

AG. (LINN.) Gills brown buff, in pairs: pileus gently convex, semi-circular, velvety, brown grey. al'neus.

Ag. acaulis, lamellis bifidis, pulverulentis. LINN. Ray *Syn.* p. 25. n. 24.

Sowerby 183—*Schæff.* 246—*Bull.* 346, *the upper figures to the right hand*—*Weig. obs.* 2. 6—*Battar.* 38. *C. D.* —*Buxb.* v. 7. 1.

Plant sitting, fixed by the edge of the pileus, woody, varying in the shades of its colours. *Gills* strong, but the surface downy. *Pileus* velvety to the touch, from ½ to 2 inches over.

Ag. alneus. Schæff. *Ag. alneus.* Bull. On decaying trunks of trees, particularly on the alder. [At Aldenham, Salop. Mr. STACKHOUSE.] Winter and Spring.

AG. (LINN.) Gills brown, waved, irregularly anastomosing: pileus brown, marked with concentric circles of various hues, semi-circular, flattish, soft and clothy. querci'nus.

Ag. acaulis, lamellis labyrinthiformibus. LINN.

Bull. 352—*Sowerby* 181—*Bolt.* 73—*Schæff.* 57—*Battar.* 38. *A. B.*—*Vaill. t.* 1. *f.* 1. 2, *in its young state.*—*Buxb.* v. 4. 1.

GILLS very much branched, and anastomosing, thick, forming oblong, angular, and nearly circular cavities, especially towards the edge.

PILEUS woody, nearly semi-circular, or of no regular shape, marked with circular tiled ridges as well as with different shades of colour, soft to the touch like buff leather or fine cork, 1 to 5 inches over or more.

STEM none.

Mr. Bolton, who has accurately attended to the economy of this plant, observes that in its first stage of growth the gills are uppermost, they are then distinct, and branched, their sides united by minute lateral projections. In its second stage the pileus is in part detached from the substance on which it grew, the detached part rises up to an horizontal position, increasing in size, while the other part remains fixed, serving as a support to it. As it grows older, the lateral projections of the gills increase in size, and filling up the interstices between the gills give them the appearance of oblong pores. Mr. Bulliard in plate 442 has given us several varieties of this very singular plant. and Schæffer 231 is one of monstrous or unusual growth. Mr. Woodward observes that the union of the gills forming lacunæ, leaves it doubtful whether it should be placed with the Agarics or the Boleti. Mr. Stackhouse says that the pileus may be said to consist only of fructification, as it cannot be separated from the old wood without taking with it the part it adheres to: he also agrees with Mr. Bulliard that it sometimes appears so much like a Boletus as to occasion a doubt to which genus it should be referred. He further remarks, that in some of the thick, and to appearance solid specimens, the pileus is not thicker than a shilling, that the gill is a thick leathery substance, little resembling the gill of an Agaric, and that it is the link which connects the Agarics with the Boleti, Ray *Syn.* 25. n. 21.

Ag. quercinus. Schæff. *Ag. quercinus.* Bolt. Common on old pales, stumps, and decayed trees.

Var. 2. Pileus green, soft, clothy.

Bolt. 73. *d.*

Gills brown, waved, often connected, in no regular order.
Pileus marked with concentric circles of various hues, from green to brown; 1 to 7 inches over. *Flesh* woody, thin, white.

It is possible that the green coat may be a species of Byssus, but this idea did not occur whilst the plant was fresh.

On old timber. Nov. 1790.

FISTULI′NA. Pileus with separate tubes underneath. Seeds in the tubes.

hepa′tica. F. Tubes very slender, unequal: pileus thick, soft, flesh-coloured.

Sowerby 58—*Bull.* 464, 497. *and* 74—*Fl. dan.* 1136 *and* 1137—*Mich.* 60—*Schæff.* 119. 118. 117. 116. 120—*Bolt.* 79.

Tubes white, to yellow red, unequal in length, very slender; distinct from each other, not fixed side to side or buried in the substance of the flesh.
Pileus semi-circular, flesh red, pulpy.
Stem thick, red, lateral, sometimes wanting. Bulliard; whose admirable drawings should be consulted in order

to gain a good idea of the structure of this very singular plant. When grown to a good size it looks exactly like a piece of beeve's liver. In the different figures cited above the under surface appears of very different colours, which Mr. Bulliard attributes to the presence or absence of pink coloured roses which close up the mouths of the tubes, but are detached before the seeds are poured out. This may in part account for the change, but it may be observed that the tubes themselves are also of different colours, viz. green, and brown red. BULL. 464, 497, BOLT. 79, MICH. 60, and SCHÆFF. 117, 118, forming the green tubed, and the others the red tubed species or variety. Not having had sufficient opportunities of examining the plants in a recent state, I mention these circumstances in hopes that others who more frequently meet with them, will attend to them at different ages, and determine the matter. The figure of Micheli is excellent, and the structure of the tubes did not escape his penetrating eye, as appears by the dissected figures at the bottom. He remarks that the pileus is rusty red, the flesh blood red, the tubes dirty dull yellow, bordered at the mouth. MICH. p. 119. This plant attains its growth in a few days, and is of short duration. BULL. Lobes elliptical, generally issuing from a short stem. In infancy it is viscid, pulpy, and exsuding on being pricked a bloody water: colour deep red. When mature the upper side gets rough and hairy, and turns blackish red or deep chocolate. The under side does not assume the form of pores till a late period. It appears at first cream coloured, and is studded very beautifully with pear-coloured pimples, interspersed with some of a blood red.

The pores and tubes are extremely minute, being like so many needles huddled together, nor is the aperture of the tubes very discernible without being magnified. They are hardly ½ an inch deep. The flesh of the plant now appears dry and stringy. Mr. STACKHOUSE.

Fistulina buglossoides. BULL. *Boletus hepaticus*. SCHÆFFER. HUDS. *Ag. porosus rubens*. RAY Syn. 23. n. 12. Seems to grow only on oak, but not always on high trees. Mr. WOODWARD.—On dead trunks, or in hollows of living trees.

Sept. Oct.

F. Tubes yellow white, slanting: pileus a leathery crust. pectina'ta.

Bolt. 74—*Ray Syn. t.* 1. *f.* 5, *at p.* 28.

Fixed by the pileus, the tubes uppermost.

Pileus the colour and consistence of a cow's hide, but softer, upon which are fixed the tubes, not united and contiguous, but separate. *Tubes*, the central ones the longest, some near ½ inch long. It grows in patches of various sizes, and no determinate shape. Colour white, to buff, browner with age, and black in decay.

Ag. pectinatus. Huds. *Bol. obliquus.* Bolton.

The Bol. lachrymans may possibly belong to this. In woods, and in cellars. Ray. Bolton. P.

BOLETUS. Pileus with united tubes underneath. Seeds in the tubes.

Stem central.

(1) Tubes white.

pellu'cidus. **Bol.** Tubes white, very short: pileus concave, rich brown, scaly: stem whitish, thick, short.

Schæff. 122.

Tubes decurrent, very short, white, semi-transparent. *Pores* white, minute, angular.*

Pileus rich brown, scaly, hollow in the middle, turned down at the edge, 2 inches over.

Stem whitish, its upper part covered with tubular pores, rather conical, ½ inch long; and as much in diameter.

Schæffer in pl. 121, has figured another plant with a smooth pileus, which he thinks is the same, and calls them both B. *ovinus.* On account of the uncertainty of their identity, I have thought it better to give it a new name; to say nothing of the futility of the old one. This species is subject to be over-run by the white and the yellow Reticularia of Bulliard. Schæffer's pl. 121 is cited by Mr. Hudson as the B. subtomentosus of Linnæus, which see.

Pool dam, Edgbaston. 6th Aug. 1791.

subfus'cus. **Bol.** (Schæff.) Tubes white, very short: pileus light brown, regularly convex: stem pale brown: root conical.

Schæff. 130, *may serve to give some idea of it, though it is not the plant.*

Tubes white, ¼ of an inch in length, pretty firmly fixed to the pileus. *Pores* white or brownish white, very minute.

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* The *pores* are the open ends of the Tubes which present themselves to the eye upon turning up the pileus, previous to any dissection of the plant. These apertures are sometimes of a different colour from the body of the Tubes, but that cannot be observed without separating the tubes.

Pileus light brown, smooth, uniform, clothy to the touch, convex, 4 or 5 inches over. *Flesh* very white.
Stem pale brown, covered with a beautiful white net-work over its whole surface, 3 inches high, and 2 inches diameter. *Root* conical.

Much like the Bol. elephantinus in its habit, but differs in the colour of its tubes, stem, and pileus, as well as in the form of the latter. No part of it changes colour on exposure to the air.

Edgbaston Park, under the large oak near the wall of the square stew. Sept.

Bol. Tubes white, brownish with age: pileus brown, convex, very fleshy: stem brown, rounded at the base. cyanes´-cens.

Bull. 369.

Tubes dirty white, ¼ of an inch long, not decurrent. *Pores* small, nearly all alike.
Pileus brown, convex, very fleshy, from 5 to 8 inches over. *Flesh* white, changing to fine blue when exposed to the air.
Stem brown below, white above; 2 to 3 inches high, 1½ to near 2 inches diameter, cylindrical upwards, the lower part rounded and egg-shaped. Bull.

Observed by Dr. Sibthorpe in the walks of Magdalen College, Oxford. Sept.

Bol. Tubes white and very short: pileus brown, irregular: flesh very thin: stem brown, rarely central. polypo´rus.

Bull. 469.

Tubes where longest about 1-10th of an inch, in some places not 1-20th. *Pores* yellowish white, circular, so small as hardly to be perceptible to the naked eye.
Pileus flattish, but irregular, the edge cooped in and depressed in places, cracking, from 3 to 6 inches over. *Flesh* not 1-10th of an inch in thickness. When the pileus is quite central on the stem, it hangs flapping down on every side.
Stem dark brown above, paler below, tough, thickening upwards, 2 inches long, ½ to 1 inch diameter. The stem varies in every degree of eccentricity, from perfectly central, to perfectly lateral, in which last state it is well figured, though from small plants, in

Bolt. 168.

Mr. Bolton observes the change it undergoes when very old, and Mr. Bulliard has a figure which pretty well represents it in that state, though I am aware it is an old plant of a different species.

Bull. 360.

But in their very old and woody state these plants lose their distinguishing characters.

Gathered in all the above different states at the foot of some paling in the old Worcester road facing the cottage by the Park Gate, Edgbaston. June.

leptoce'phalus. **Bol.** Tubes white: pileus bay; flat, thin: stem brownish.

Jacq. misc. 1. 12.

Tubes white, very short.
Pileus tawny bay, flat, thin, leather-like; about 1 inch diameter.
Stem pale or reddish brown, thick as a crow quill and about ½ inch long.

First observed in this island by Mr. Dickson, growing on rotten sticks. Fasc. iii. p. 21.

aurantia'cus. **Bol.** (Bull.) Tubes whitish: pileus red orange: stem whitish, rough.

Bull. 236 *and* 489. *f.* 2. *R. S.—Sowerby* 110.

Tubes not decurrent, brownish white, 1-3d of an inch long, readily separating from the pileus. *Pores* brown white, circular or angular.
Pileus convex, full orange red, viscid, 4 to 6 inches over, and sometimes much larger, thin at the edge, and without tubes for about 1-10th of an inch. *Flesh* yellowish white, not changing.
Stem whitish, or pale yellowish white, rough with coloured pimples like the skin of a goose, thickest downwards, either rounded or pointed at the base; spongy within, 2 to 3½ inches high, ½ to 1 inch or more in diameter.

Fir plantations at Barr, Staffordshire. June.

(2) Tubes brown.

bovi'nus. **Bol.** (Linn.) Tubes pale yellowish brown, unequal in length: pileus brown or olive, clammy: stem thick pale brown with rusty stains.

Boletus stipitatus, pileo glabro pulvinato marginato, poris compositis acutis, porulis angulatis brevioribus. Linn.

Bull. 60.

TUBES pale yellowish brown, not touching the stem, the longest ¼ to ½ inch long. *Pores* brown white, becoming more brown, and red brown with age.

PILEUS convex, thin at the edge, dark brown to olive, or tawny brown, viscid; 3 to 6 inches over. *Flesh* very thick, spongy, white, not changing colour.

STEM dirty white with reddish stains, white in the flesh, but sometimes with a reddish tinge, 3 to 7 inches high, and ¾ to 1½ inch diameter.

This species, though not uncommon, has been the occasion of great confusion, partly because it had never been well figured before the 60th plate of M. Bulliard appeared, and partly from the Linnæan character holding forth the inequality of the pores as its most prominent feature. It is true, the pores appear very much like a piece of sponge, both in colour and shape, and admit of great variety in size and figure, especially as we find sets of tubes together, opening with small pores, surrounded by other longer tubes, which Linnæus calls compound pores. This is a striking circumstance, but as it likewise exists in several other of the larger Boleti in their fully expanded state, instead of aiding the discrimination it has promoted the confusion of the species. Not less than ten of the plates of Schæffer have been first and last given to this plant, though none of them represent it except 103, and 104, which are varieties, and 134, and 135, which may also be varieties, but it does not appear that they are known as British plants.

Schæff. 105, is the B. luteus, with bright yellow tubes and pores, and a crimson and yellow stem.
——— 107, has green yellow tubes and crimson pores, and is B. rubiolarius.
——— 108, is a variety of the B. luteus.
——— 112, has green yellow tubes and pores, with an orange pileus.
——— 130, has lemon coloured tubes and pores, a dotted brick-red pileus, and a yellow and pinky stem.
——— 133, is the B. lactifluus, with a milky or yellow juice.

Micheli t. 68, 69, generally; 68. 1. and 68. 1, 2, more particularly have been referred to for the Bol. bovinus, also Battar. 29 A. B. and 30. A. B.; but notwithstanding a general resemblance in the figures, the descriptions of the authors give little reason to believe that they are the plant.

Edgbaston Park. End of Oct.

Var. 2. Tubes pale yellowish: pores tawny: pileus buffy brown; stem red brown, reticulated at bottom.

Bolt. 85.

Tubes not touching the stem; pores round, small. Sept.

Var. 3. Tubes brown white. Pileus brown, clothy. Stem dirty white, tapering greatly upwards.

Bolt. 86—*Schæff.* 104, *but the tubes represented more yellow than ours.*

TUBES not connected with the stem, brown white, sometimes greenish, hardly ¼ of an inch long. *Pores* dilute watery brownish white, irregular in shape and size.
PILEUS warm brown, paler towards the edge, regularly convex, feels like fine cloth, cracking superficially at the edge, but not so as to shew the flesh. *Flesh* white, changing slowly when cut to a pinky cast.
STEM dirty white, pear-shaped at bottom and tapering upwards, 4 or 5 inches high, ½ to 1¼ diameter. *Flesh* white, that of the bulbous part changing slowly to a bluish, but that above to a pinky cast.
Pastures, Edgbaston. August.

Var. 4. Pileus dark brown: stem rough with scurfy scales pointing upwards.

Bull. 132, *and* 489. *f.* 1—*Schæff.* 103—*Sowerby* 175.

Stem more cylindrical than in the preceding.
Pastures, Edgbaston, with the former. August.

* Var. 5. Pores white, angular. Pileus brown, scaly and tessellated.

Dicks. 3. 2—*Scop. ann.* iv. 1. 5.

Pores very white. *Pileus* dark brown, hard, about 2 inches over, the surface tessellated something like the cone of a fir. *Stem* thick, 3 or 4 inches high. DICKSON.

Found by Mr. Lightfoot in woods near Bullstrode, Buckingham. August.

sub-squamo'sus. BOL. Pores pale brown, oblong: pileus yellowish brown, with red brown scurfy scales: stem brownish, taper.

PILEUS 3 inches in diameter, the centre hollowed, the edge turned down, often splitting in dry weather. *Flesh* solid, pure white.
TUBES pale brown, decurrent.
STEM tapering downwards; brownish below, yellow brown upwards.
It has the smell of the Bol. edulis.
Grows in upland pastures amongst heath and furze. Mr. STACKHOUSE. June.

(2) Tubes Brown.

Bol. (Binn.) Tubes ochrey brown: pileus flattish, hollow in the centre, striated, marked with alternate circles of brown and tawny: stem red brown. peren′nis.

Bol. stipitatus, perennis, pileo utrinque planiusculo. Linn.

Sowerby 192—*Bull.* 28, *coriaceus.*—*Schæff.* 125—*Bull.* 449. 2—*Bolt.* 87—*Fl. dan.* 1075. 2.

Tubes decurrent, ochrey yellow brown, not separating from the pileus, extremely short. *Pores* round or angular.
Pileus flattish, hollow in the centre, striated with hairs, marked with alternate circles of brown and tawny; 1 to 1½ inch over; leathery.
Stem red brown, often eccentric, 1 inch long, thick as a raven's quill.

M. Bulliard remarks the disposition of the pilei to unite when they happen to grow in contact with each other.

Stem short, small, wiry. *Pileus* very thin at the edge, chocolate colour when young, with a greenish cast when old. *Pores* irregular, small, snuff-coloured. The whole plant is leathery or woody, and frequently comes up so thick that the pilei run into one another. Mr. Stackhouse.

Dean and Chapter Grove, Hereford, on old charcoal pits. Common hill wood, Fownhope. Mr. Stackhouse.

Var. 2. Tubes, pileus, and stem cinnamon colour.

Bull. 254—*Jacq. coll.* 1. *t.* 2.

Wholly cinnamon coloured within and without.

Tubes decurrent. *Pores* angular.
Pileus flat convex, striated, thin, hollow in the centre, 1 inch over, soft and silky to the touch.
Stem woolly, an inch high, and as thick as a crow quill.

Pileus thin, woolly, marked with zones; very brittle when dry. Dickson.

Bol. cinnamomeus. Jacq. First found in this kingdom by Mr. Dickson, but given to us with no other habitat than the general one of—pastures.

***Bol.** (Linn.) Pores tawny, rather angular, of different shapes: pileus yellow, somewhat woolly: stem yellow. sub-tomento′sus.

Bol. stipitatus, pileo flavo sub-tomentoso, poris sub-angulatis difformibus fulvis planis, stipite flavo. Linn.

Mich. 68. 2.

Pileus convex, fleshy, by no means smooth or clammy; sharp at the edge. *Pores* with blunt angles, the ends forming a plano-concave surface. *Stem* smoothish. *Fl. Suec.*—This is introduced on the authority of Mr. Hudson, who refers to Schæff. t. 121, with yellowish white pores, and a whitish stem.

In woods, near Eshar, Surry. Huds. Sept.—Oct.

rubeola'rius. Bol. (Bull.) Tubes olive colour; pores rich red brown: pileus and stem red cinnamon.

Bull. 100, *and* 490. 1—*Schæff.* 107.

Tubes olive colour, fixed to the stem. *Pores* rich red brown, variously shaped, but mostly oval.

Pileus red cinnamon, convex, soft to the touch and rather clammy. *Flesh* thick, spongy, buff colour, instantly turning blue when wounded.

Stem red cinnamon and bulbous below, yellow, reddish, and cylindrical above; spongy within and rich yellow, but instantly changing to a blue; 2½ to 3 inches high, ¾ to 1¼ diameter.

In its young state the pores are crimson, and the centre of the pileus of a chocolate colour.

Edgbaston Park, under Spanish chesnut trees. Aug.

pipera'tus. Bol. Tubes decurrent, red or yellow red: pileus yellow, smooth, nearly flat: stem dirty yellow.

Bull. 451—*Sowerby* 34.

Tubes decurrent, short, deep orange or earthy red. Pores browner, open irregular.

Pileus yellow, flat, thin at the edge, 3 inches over. *Flesh* thick, tinged with yellow.

Stem dirty greenish yellow, cylindrical, 1½ to 2 inches high, 3-8ths of an inch diameter.

First found by Mr. Sowerby in Hainault Forest, towards Chigwellrow, Essex, in tolerable plenty; who informs us that its pungency on the tongue and throat is like that of a Capsicum.

(3) Tubes buff.

nummula-rius. Bol. (Bull.) Tubes very short, buff colour: pileus colour of horn, convex, dimpled: stem colour of horn, black at the base.

Bull. 124—*Sowerby* 89.

Tubes loose from the stem, buff, very short. *Pores* angular; general surface underneath the pileus concave.

Pileus the colour of brown horn, with a black circle at the edge, gently convex, but hollowed in the centre; tough like leather, smooth, very thin, from ½ to 1½ inch diameter.

Stem colour of brown horn, black at the base, smooth, 2 inches high, thick as a goose quill.

Mr. Bulliard figures the stem as more or less eccentric, and says they are always so, but the specimen from which the preceding description was taken, and others which I have seen since, are exceptions to this observation. Mr. Dickson observes that it is chiefly found on slender rotten branches of hazle. He quotes the fig. of Bulliard, cited above, and in his second fasc. refers Bolt. 83, to this plant, but I think Bolton's is a different species.

On a piece of rotten stick by the tail of the pool in Edgbaston Park. 16th March, 1791.

Bol. Pores ochrey red; tubes decurrent: pileus whitish: stem black. nigripes.

Tubes decurrent, very short. *Pores* minute brown buff or ochrey colour.

Pileus whitish, flattish, a little spotted, the size of a sixpence; the edge thin and slightly turned down.

Stem black at the bottom, about 1 inch high; thick as a crow quill.

Found by Mr. Stackhouse growing on the stump of an ash cut off and rotting, at Pendarvis, Cornwall.

(4) Tubes yellow.

Bol. Tubes yellow, short: pileus dead white, convex, but very irregular: stem yellow, thick and short. elephantinus.

(*Schæff.* 134 *and* 135, *nearly resemble it, except in colour.*)

Tubes yellow, the longest not more than 1-3d of an inch, adhering firmly to the pileus. *Pores* very small, circular.

Pileus dead white, convex, but very irregular in shape, from 2 to 4 inches over, downy in the depressed parts, cooping in, and so thick in flesh as to leave but little space for the tubes.

Stem yellow, 1 to 2 inches high, and nearly as much in diameter.

I named it from its thick clumsy stem, and its general massy appearance.

Red rock plantation, Edgbaston Park. Sept. 1791.

(4) TUBES YELLOW.

ed′ulis. **Bol.** (Bull.) Tubes green yellow: pileus brown: stem light brownish yellow.

Fl. dan. 1074—*Bull.* 494, *very large.*

Tubes greenish yellow, more than ¾ of an inch long, not fixed to the stem, readily separating from the pileus. *Pores* brown yellow, circular, small for the size of the plant.

Pileus pale or deeper brown, with rust-coloured patches, nearly globular, and 5 or 6 inches over when opening, but a flat convex and 7 or 8 inches across when fully expanded. *Flesh* white, attaining a greenish colour when wounded.

Stem light brown or yellowish, 3 to 5 inches high, 1½ diameter, tapering upwards.

Mr. Bulliard reckons this a variety of the B. bovinus of Linn.

Fir plantations at Barr, Staffordshire. August.*

Var. 2. Smaller: pores large: pileus buffy, dark brown at the edge and fleckered with dark brown stains: stem yellowish, with rusty stains.

Pileus near 3 inches over. *Stem* 2½ inches high, full ¼ inch diameter. *Flesh* white, turning greenish.

In Packington Park. Also at Pendarvis, by Mr. Stackhouse, who observes that the smell is grateful, and that the skin of the pileus readily strips off. July—Autumn.

grega′rius. ***Bol.** Tubes yellow; pores oblong, unequal: pileus thin, flattish, dark or pale chesnut: stem pale chesnut, pinky below.

Fl. dan. 1018.

Tubes short. *Pores* small, angular, yellow.

Pileus reddish yellow, clammy, smooth, thin, flat, 2 to 4 inches over. *Flesh* white.

Stem insensibly swelling into the pileus, and expanding till it loses itself in the rim; 3 to 4 inches high, ½ inch diameter.

I met with this in the summer of 1790, and marked its singularity in being fasciculated, before I saw the plate in the Fl. dan. It is much eaten by insects. Mr. Stackhouse.

Pendarvis, Cornwall. Mr. Stackhouse.

lu′teus. ***Bol.** Tubes deep yellow: pileus deep bay, striated: stem dirty white, ring permanent.

Bol. stipitatus, pileo pulvinato sub-viscido, poris rotundatis convexis flavissimis, stipite albido. Linn.

* (This plant is said to be eatable, and when properly dressed somewhat to resemble veal. E.)

Fl. dan. 1135—*Schæff.* 114—*Hedwig th.* 36. 210.

TUBES deep yellow, ¼ of an inch long, readily separating from the pileus. *Pores* round, very small and regular.
PILEUS rather conical, edge turned in, deep bay, darkest in the centre, striated with hairiness, viscid, 3 to 4 inches over. *Flesh* white, not changing.
STEM dirty white, cylindrical, widening at the top, bulbous at the root. *Curtain* membranaceous, whitish. *Ring* permanent. SCHÆFFER.

Woods and pastures. Aug.—Oct.

BOL. Tubes bright yellow: pileus olive brown: stem brown below, yellow or crimson above. oliva'ceus.

Bolt. 84—*Schæff.* 105, *and* 315—(*ib.* 108, *seems to be a variety.*)

TUBES bright yellow, the longest next the stem about ¼ of an inch; instantly turning blue when wounded. *Pores* bright yellow, round or oval.
PILEUS olive brown, 3 to 4 inches over, edge turned down. *Flesh* yellow, instantly turning blue when exposed to the air.
STEM brown below, bright yellow or crimson elsewhere; 3 to 4 inches high, ¾ inch diameter. *Curtain* brown, fugacious.

Mr. Bulliard quotes Bolt. 84 as a synonym to his B. *annularius*, but the latter has a yellow pileus with streaks, a permanent ring on the stem, and the flesh not changing colour when exposed to the air.

Chuch Lane, Edgbaston, hedge banks and amongst moss. Sept.

Var. 2. Pileus dark brown, woolly: stem crimson at the base.

Tubes yellow. *Stem* pale yellow, the base crimson, and streaks of crimson extending upwards. *Flesh* white, when cut changing slowly to faint blue, but only so in places.

In Packington Park. Autumn.

Further observation may perhaps shew it to be distinct.

BOL. Tubes yellow: pileus blood red, changing to rich red brown: stem yellow, with broad crimson streaks. sanguin'eus

TUBES yellow, a little decurrent, unequal in length, but mostly about 1-8th of an inch long, changing to deep blue when broken. *Pores* lemon yellow, angular.

PILEUS crimson, semi-globular, ¾ to 1¼ inch over; when old rich red brown, near 3 inches over, and the edge turning up. *Flesh* white, a little tinged with crimson next to the skin, changing slowly to a bluish cast when wounded.

STEM, blotches or streaks of dilute crimson on a yellow ground, apparently twisted, 1 to 2½ inches high, near 3-8ths diameter. In the larger specimens the base is bulbous.

I have never found this species elsewhere than on the spot mentioned below, and no author I meet with has figured it. In its button state the blood red pileus, the yellow and crimson stained stem, and the fine lemon-coloured pores render it a beautiful object. I once only found it in an expanded state as described above, growing on the same spot, but am rather doubtful as to the identity of the species.

Between the large square stew and the wall, in Edgbaston Park. Aug.

chrysen′teron. BOL. (BULL.) Tubes yellow, decurrent: pileus gently convex, pinky red: stem yellow below, pinky upwards.

Bull. 393.

TUBES decurrent, yellow, 1-3d of an inch long, changing to greenish when broken. *Pores* yellow, round or oblong.

PILEUS a flat convex when fully expanded, pinky red, 2 to 3 inches over.

STEM yellow below, pinky upwards, swelling below, but tapering again at the root 2 inches high, ½ inch diameter.

Rookery, Edgbaston. July.

fla′vus. BOL. Tubes brown yellow, a little decurrent: pileus orange, shining, viscid: stem yellow.

Bolt. 169, *excellent*—(*Bull.* 332, *nearly allied to it, but not the same.*)

TUBES brownish yellow, a little spreading down the stem. *Pores* lemon colour, irregular in shape and size, the larger ones divided by partitions, the ends of the partitions shorter than the ends of the larger tubes.

PILEUS convex, edge rather turning up, deep orange when young, paler with age, shining with a viscid varnish, 2 to 4 inches over. *Flesh* pale yellow, not changing when cut.

STEM yellow, 1 to 3 inches high, cylindrical, ½ to ¾ inch diameter. *Curtain* white, connecting the edge of the pileus with the stem, and leaving a ring on the stem.

Mr. Bolton cites Bull. 332 for this plant, but it differs in its dry pileus with red streaks, and its white flesh.

In several of the plantations in Edgbaston Park. Aug.
Very frequent in the pleasure grounds at Enville. June.

BOL. Tubes yellow, pileus red buff: stem bright yellow: juice like milk. lactif'luus.

Schæff. 133, (*nearly the same.*)

TUBES in contact with the stem, yellow, less than ¼ of an inch in length. *Pores* bright yellow, very minute. They seem as if filled up by the exudation of an inspissated juice.
PILEUS reddish buff, or fawn-colour, very convex, viscid, 2 to 4 inches over. *Flesh* thick, white, solid.
STEM bright yellow within and without, paler with age, ¾ to 2½ inches long, 3-8ths thick.

When fresh gathered the plant abounds with a white milky juice, not acrid. Its flavour is like that of the Ag. campestris. When old the milk is less abundant. Schæffer's plant is described as having a yellow juice, and the pileus purplish red; in other respects they agree.

Edgbaston Park. 5th Aug. 1791.

***BOL.** (BOLT.) Tubes dirty yellow: pores minute: pileus dirty yellow, convex, thin: stem dirty yellow, hard, tough, sometimes eccentric. substric'tus.

Bolt. 170.

TUBES the longest about ¼ of an inch. *Pores* pale yellowish colour, minute, regular, angular when magnified.
PILEUS yellow brown olive, inclining to ash colour, gently convex, thin at the edge, smooth, tough, leathery, 1 to 2 inches over. *Flesh* thin, white.
STEM dusky or yellowish, white within, cylindrical or compressed, hard, tough, 1 to 2 inches high, thick as a goose quill. BOLTON.

Near Darlington, and North Dean near Halifax.

STEM lateral.

(1) TUBES white.

BOLT. Tubes white, decurrent; pores white: pileus white, lobed: stem whitish. al'bidus.

Schæff. 124.

TUBES decurrent, white, not perpendicular to the pileus but sloping so much towards the stem as to be nearly horizontal;

near the stem ¼ of an inch long, shorter towards the edge of the pileus. *Pores* white, angular, very irregular in shape, ragged at the end, often appearing sinuous, especially towards the edge of the pileus.

PILEUS white, or buff and edged with white, a fan-shaped expansion of the stem turning up, and wrinkled at the edge, from ½ to 4 inches over; often tiled.

STEM solid, lateral, pinky white, sometimes only a knob, but generally ½ to 3 inches long, and 1-3d of an inch diameter.

The whole plant is white, but the whiteness depends on a very fine dense cottony substance, which is readily abraded, and then discovers a pinky tinge, and when more abraded, a foxy brown. It is much perforated by the stems and leaves of grass, and grows on the ground, but attached to bits of decayed wood.

Red Rock Plantation, Edgbaston, plentiful. Aug. Sept.

rugo'sus. *BOL. (JACQ.) Tubes white: pileus chesnut coloured, shining: stem hard, uneven, chesnut coloured, shining.

Curt. 224—*Bull.* 7 *and* 459—*Jacq. austr.* 169—*Batsch.* 225—*Sowerby* 134.

TUBES very white. *Pores* exceedingly small. THUNB. Jap. t. 39.

PILEUS flat, semi-circular, or more: highly polished, marked with concentric grooves; edge thick, wrinkled, 3 to 8 inches over.

STEM lateral, chesnut-coloured, hard, uneven, shining as if varnished, 3 to 5 inches high, 1 to 2 inches in diameter. Sometimes without a stem. Mr. WOODWARD.

Bol. lucidus. CURT. *Bol. obliquatus.* BULLIARD; who describes his plant as varnished in every part except where the pores are, but has not expressed it so in his figures. *Pileus* oblique, lateral, purplish brown, wrinkled in circular wavy lines, highly varnished, puckered at top, a wave of dirty white at the rim. *Pores* very minute, dirty white. *Stem* thick, crumpled, colour of the pileus. Mr. STACKHOUSE.

Stumps of trees. Eversden and Linton Woods, Cambridgeshire. [Ditchingham and Brome. Mr. WOODWARD.—Woolhope, Herefordshire. Mr. STACKHOUSE.] July—Sept.

frondo'sus. *BOL. Tubes white: pileus brown, lobed, tiled: stem black at the base, very irregular.

Sowerby 87—*Fl. dan.* 952—*Schæff.* 128. 129—*Bolt.* 76—*Barr.* 1268.

TUBES decurrent, white, about 1-10th of an inch long. *Pores* very small, very numerous, circular, or angular, sometimes confluent.
PILEUS pale yellowish brown to deeper cinnamon, leathery, waved, lobed, sometimes jagged, lobes tiled one over another, 2 inches wide and rather more in length.
STEM very irregular and misshapen, expanding so as to form the pileus, about an inch high, or more, sometimes almost covered with pores, never central, black at the base, several together in clusters, near an inch broad. RELHAN. DICKS.

I saw one at Brome growing at the bottom of an old tree, which measured nearly 2 feet across, and the tiled lobes next to the tree more than 6 inches deep. Mr. WOODWARD.

BOL. Tubes pure white, very short: pileus pinky brown, edge curled in: stem black. betuli'nus.

Bolt. 159—*(not Bol. betulinus, Bull.* 312.*)*

TUBES very white and short, from 1-10th to 1-50th of an inch long. *Pores* very minute; general surface concave.
PILEUS smooth, oblong, convex, curled in at the edge, pinky brown, thin, flexible, often divided into tongue-shaped lobes. *Flesh* white, ¼ of an inch thick, very thin at the edge.
STEM lateral, black, 1 to 2 inches long, ½ inch diameter.

Whole plant leathery, tough, 2 to 4 inches wide, and 3 to 8 inches long: looks when growing, and smells like the Ag. ostreatus. The tubes do not separate from the pileus except in the older plants; in the young ones I have found it next to impossible to detach them.

On the stump of an ash tree; Edgbaston. May.

BOL. Tubes dirty or ochrey white: pileus golden yellow; variously shaped, jagged, curled: stem brown. crista'tus

Schæff. 316, 317.

TUBES short, not separating: pores irregular.
PILEUS very irregular, mostly hand-shaped and lobed, but jagged, twisted, and curled.
STEM woody, distorted, irregular, thick, porous.

First observed as a British species by Mr. Dickson, growing on trunks of trees; he tells us it sometimes attains the height of 2 feet. Dicks. fasc. iii. 21.

BOL. Tubes yellow white; pores large, angular: pileus pale buff, pencilled with feather-like scales. squamo'sus.

Fl. dan. 1196 *and also* 893—*Schæff.* 101 *and* 102—*Bull.* 114—*Bolt.* 77—*Batsch.* 41—*Sterb.* 13, *and possibly* 14.

TUBES short, nearly white, slanting. *Pores* large, whitish, angular, varying much in size.
PILEUS pale buff, adorned with feather-like scales of a deeper dye, sometimes with a tinge of red, semi-circular, or fan-shaped, from 5 to 14 inches over. *Flesh* white, firm, elastic.
STEM lateral, dark-coloured, white within, from 1 to 2 inches long, and as much in breadth.

It has a rank fungous smell, and is apt to abound with maggots.

On the stumps of various kinds of trees; much crowded together. In the rick yard, Edgbaston, on the stump of an ash. June.

(2) TUBES yellowish.

rangiferi'nus. *BOL. Pores yellowish: pileus dirty yellow: stem dark brown, branched.

Phil. trans. abr. x. *pl.* 20. *f.* 109, *at p.* 705—*Blackst. frontispiece*—*Bolt.* 138.

TUBES decurrent, dirty yellow, ragged at the extremity.
PILEUS an expansion of the stem, dirty yellow, oblong, about 2 inches by $1\frac{1}{2}$.
STEM dark brown, $1\frac{1}{2}$ to 3 inches high, thick as a swan's quill, often with one or more lateral branches, splitting at the end into several horn-shaped branches, with yellow tops, or else expanding into the pileus. *Root* a congeries of brown substances as large as hazle nuts. BOLTON.—The whole plant bears a resemblance to the palmated branching horns of the larger species of deer. Professor Martyn, who first published an account of it, says that his plant was 2 feet high. It was of a dusky red colour, inclining to black; the pores and the tips of the horns of a cream colour.

Both Mr. Martyn's and Mr. Bolton's plants were found affixed to a log of wood in a cellar.

calce'olus. BOL. (BULL.) Tubes buff colour, pores very small: pileus deep buff to chesnut, hollowed in the middle, thin and waved at the edge.

Bull. 46—*Bol. elegans, the chesnut coloured pileus; ib.* 445. 2, *the buff pileus; ib.* 360, *an old plant, which if it* *was not for the decurrence of the pores on the stem would also represent the Bol. polyporus in its old and woody state.*

Tubes decurrent, the longest near ¼ of an inch. *Pores* buff colour, small, but not all of the same size.

Pileus deep buff to chesnut colour, firm and hard to cut, like a cork, hollowed near the insertion of the stem, thin and waved or curled at the edge, 2 to 4 inches over.

Stem lateral, sometimes approaching to central, tough, white, conical, gradually losing itself into the pileus and becoming covered by the pores, so that it is difficult to decide its length, which however may be considered as near an inch in the larger specimens, and 1-4th to 3-8ths diameter. The plant is much crowded in its growth, so that the substance of one often unites with the substance of those adjoining it.

Bol. elegans. Bull. 46.—Stump of an ash tree, rick yard, Edgbaston. June.

***Bol.** (**Bolt.**) Tubes yellow, very short: pileus dead latera'lis. yellow, thin, smooth: stem yellow.

Bolt. 83—*Battar.* 34. *A.*—*Fl. dan.* 1075. 1, *is very like the plant, but the pores are white; possibly an omission in the colouring.*

Tubes about a line in length. *Pores* circular, so minute as not to be discernible by the naked eye.

Pileus yellow, smooth, flat, very thin, leather-like, 1 to 2 inches in diameter.

Stem lateral, dull yellow, gradually spreading out at its top so as to form the pileus, ½ to near 1 inch long, ¼ inch diameter. *Root* hard, black. **Bolton.**

On the trunk of a fallen willow. Aug.

STEMLESS.

(1) TUBES white.

Bol. (**Linn.**) Tubes white, pointed: pores irregular: subero'sus. pileus white, convex, smooth, thin.

Bolt. 162—*Bull.* 482. *F.*

Bol. acaulis, pulvinatus, albus, lævis, poris acutis difformibus.

Snowy white; soft as sponge. **Linn.**

Pileus arched, thin, wrinkled, sometimes marked with zones, grey white, very watery when young. BULLIARD.—*Tubes* of unequal lengths. *Pileus* white, downy when young, smooth when old, but made uneven by rising bunches. BOLTON.—This is known from its perfect resemblance to cork. *Lobes* thick. *Pores* irregular in their shape. Bull. C. D. G. are redder than I have seen it. Mr. STACKHOUSE.

Trunks of ash trees in Westmoreland, common. [Plentiful near Bath, on stumps of trees. Mr. STACKHOUSE.]

medul'la-pa'nis. BOL. (JACQ.) Woolly white, crustaceous, spreading; pores on the upper surface only; slanting.

Jacq. misc. I. 11—*Bolt.* 167, *the lower figure*—*Mich.* 63. 2.

Crustaceous, white, spread thin, accommodating itself to the surface of the ground or of the rotten wood on which it grows, from 1 line to several in thickness, soft when young but firm. *Pores* very small, cylindrical, numerous, a little slanting, covering the whole upper surface only. JACQUIN.

On rotten wood. DICKS. 18, and decayed branches of trees. RELH. *n.* 1044.—[I found this in a ploughed field near Bungay, apparently growing on the ground, but on examination it arose from a decayed root near the surface. Mr. WOODWARD. On the bark of fallen trees in the rookery, Edgbaston.] April.

Var. 2. Pores very shallow.

Bolt. 166.

At first white, thin, and like white glove leather full of pores with short tubes, or rather resembling deep cells. In time these pores disappear, the plant becomes thicker and firmer, the edge lobed and scolloped, the surface leathery and smooth, but sometimes cracked. The edge then begins to separate from the wood, the colour changes to pale brown, and at last to dark red brown; it then becomes hard, dry and brittle, the border is more raised and the under side appears marked with black circles. In this state it remains for a long time and at last turns black and moulders. BOLTON, p. 166.

Bol. proteus. On decayed wood, and branches of trees, in damp situations. On the stump of a tree that had been sawn off; Edgbaston. Oct.—Feb.

salic'inus. BOL. (BULL.) Tubes white to tawny; very short: pileus semi-circular, whitish, smooth, thin, soft, leathery.

Bull. 433. 1.

Tubes hardly the tenth of an inch long. *Pileus* not marked with concentric circles, always smooth and thin, from 2 to 5 inches over. It is seldom found in clusters; always on sickly or dead willows. Sometimes it sends out fibrous roots between the bark and the wood. Substance soft, leathery, not hard like cork: its duration not more than 2 or 3 months. BULLIARD. This grows out of decayed willows; it is dry and leathery; sweet smelling, pale brown. *Pores* oblong, resembling a honey comb in structure. Mr. STACKHOUSE.

Bol. albus. HUDSON. On willow trees, very common. May—Oct.

Var. 1. Pileus white, downy, scolloped and almost curled at the edge.

Bolt. 78.

TUBES white, turning to a dirty red when cut or bruised; nearly 1-10th of an inch long. *Pores* very irregular in shape and size.

PILEUS white, downy, when this is rubbed off, red brown: 7 inches long, 3 inches broad, thin at the edge, and waved, 1½ inch thick at the base.

Hedge banks, Edgbaston, fixed to half rotten wood. July.

The specimens I have seen were larger than figured and described by Bolton; the margins were lobed and waved, but not with so much elegance. Mr. Bolton's fig. being taken from a small plant, it might grow with more regularity. Mr. WOODW.

Ditchingham near Bungay, and at Diss, Norfolk. WOODWARD.

BOL. (LINN.) Tubes very long, white changing to tawny: pileus smooth, semi-circular, white or tawny: flesh yellow brown. BULL. suave'olens.

Bol. acaulis, superne lævis, salicinus. LINN.

Bull. 310—*Walc. n.* 4. *B. suberosus.*

TUBES at first whitish, changing to straw colour, and then to tawny, especially at the ends, ½ an inch long or more in large specimens. *Pores* irregular.

PILEUS at first white, tawny, brownish and marked with concentric circles as it grows old. *Flesh* white or yellowish, compact, like cork. Diameter from 2 to 5 inches or more. Its odour penetrating and agreeable, but it loses this with age, and even in the younger plants when thin it is not always perceptible. BULLIARD.

On the trunks of willow trees, in Autumn, not uncommon; continuing about a year.

Sometimes growing tiled one above another to a very large size. Pileus frequently tinged with orange. The B. albus of Hudson is thicker at the base and more regular in its figure.

Mr. WOODWARD. In its young state the whole outside of the plant is perfectly white.

Bol. discoideus. Dicks. On old oaks and other trees, frequent. Mr. WOODWARD.

spongio'sus BOL. (LIGHTF.) Pores whitish, fringed, angular: pileus brown, woolly.

Bastar. 33. *D, E, F, G, H.*—*Clus.* ii. 265. 2—*J. B.* iii. 831. 2.

Sitting, horizontal, semi-circular, convex, sometimes as big as a peck measure. LIGHTFOOT. Very elegant when young, turning quite black when old. *Seeds* when ripe falling out in form of a yellow powder, and when examined appearing fastened to a slender hair-like thread like the beads of a necklace. These filaments often hang down, forming festoons, from the under surface of the pileus. Mr. WOODWARD.

Trunks of trees. [Mostly on elms, and often exceeding the trunk of the tree in diameter. Mr. WOODWARD.]

la'chrymans. *BOL. (WULFEN.) Tubes white: pileus orange coloured, wrinkled, reticulated, with a broad, white, arched border.

Jacq. Misc. ii. 8. 2—*Sowerby,* 113—*Scop. subt.* 9.3.

Stemless, leathery, half oval, one or two lines thick, 3 inches long, 1½ broad, smooth, flesh white. The under surface in contact with the wood or the walls, white, smooth, without pores; but the white border contains the pores, which are sometimes also found in the yellow part. The pores are circular, or quadrangular, or compressed, and contain water. WULFEN, in Jacq. misc. ii. p. 111.

In heaps on deal planks in places exposed to wet where they communicate with the walls. DICKSON. fasc. i. p. 18; excluding by the advice of Mr. Woodward the references to Ray and Hudson. [On decaying wood in cellars frequent. Not uncommon on gates and posts exposed to the weather, but in such situations it does not spread much. Mr. WOODWARD.]

versi'color. BOL. (LINN.) Tubes white: pileus striped with different colours.

Bol. acaulis, fasciis dicoloribus, poris albis. LINN.

Bull. 86—*Schæff.* 268 *and* 269—*Bolt.* 81—*Walc. n.* 9—*Battar.* 35. *A.*

Pores very minute: tubes very short, wearing out with age. Mr. STACKHOUSE. *Tubes* very short. *Pores* circular or angular, varying in size. *Pileus* thin, velvety, striped in concentric circles of various colours. This plant is very common. In its first stages of growth the pores are uppermost, in time it quits its attachment by the pileus and reverses itself, as explained in the account of the Ag. quercinus.

On trees, rails, and stumps. P.

(2) TUBES brown.

BOL. (BULL.) Tubes dark brown, long: pores rich yellow brown: pileus dark red brown, semi-circular, very uneven. cuticula'ris.

Bull. 462.

TUBES long, darker brown than the flesh. *Pores* minute, regular, rich yellow brown, when turned sloping to the light exhibiting silvery reflections like the pile of velvet.

PILEUS rich dark red brown, often whitish at the edge, strongly marked and made very uneven by concentric ridges; sometimes one stratum of the plant laid on another; 3 to 5 inches wide, 1½ to 3 inches broad. *Flesh* thin, brown.

On a dead alder stump below the cascade by the side of the brook, Edgbaston Park. Dec.

BOL. (BULL.) Tubes rust coloured, very long: pileus rust coloured, thin, supine. crypta'rum.

Bull. 478—*Bolt.* 165.

Tubes ½ an inch or more in length, constituting almost the whole substance of the plant. *Pores* rusty brown, very minute. *Pileus* thin, leathery, or spongy, soft, adapting itself to the wood on which it grows, and serving as a base on which the tubes are erected. BOLTON. BULLIARD. In M. Bulliard's plate the plants are represented as growing in great masses, and cupping up. These grew in vaults upon hewn timber. Mr. Bolton found his on dry decayed boughs of hazle. In the course of time the whole plant assumes a woody texture, harder than cork, as is the case with a specimen sent me by Mr. Gough of Kendal, which grew upon the rotten branch of a plumb tree. The pores in this specimen form eleven concentric circles, one laid against the other; and it is probable that each circle is the growth of a year. The pileus, or the part by which it was attached, does not shew any marks of a regular increase.

BOL. (BULL.) Tubes red brown, long: pores sinuous: pileus rugged, zoned, brick red. lab'yrinthifor'mis.

Bolt. 160—*Bull.* 491. 1.

Tubes ¼ to ½ inch long, reddish brown. *Pores* sinuous or labyrinth formed, greyish or reddish brown. *Pileus* rough, wrinkled, marked with distant concentric circles of a lighter or darker brown colour, semi-circular, 1½ to 2 inches radius. *Flesh* woody, pale brown, veined, smooth. BOLTON. BULLIARD. *Lobes* many from one root, waved at the edge, pustulated on the upper surface; reddish brown. *Pores* oblong, angular and sinuous. Mr. STACKHOUSE; to whose attentions I am indebted for a specimen.

On old trees, and roots. [Trunks of trees cut off, or on the adjoining ground. Mr. STACKHOUSE.] Sept.

uni'color. BOL. (BULL.) Tubes grey brown: pores labyrinth-formed: pileus woolly, with zones of different shades of the same colour.

Bull. 408, *and* 501. *f.* 3—*Bolt.* 163, *young plants.*

Tubes ¼ of an inch or more in length. *Pileus* thin, semicircular, leathery, mostly brown or red brown. BULLIARD. In habit much resembling the B. versicolor, but differs in the colour and length of the tubes. *Pileus* sometimes green.

On trees, stumps, and rails, not uncommon. P.

(3) TUBES red.

lacinia'tus. *BOL. Tubes very short: pores blossom coloured: pileus brownish or ash coloured, arched, warty, thin, fringed at the edge.

(*Bull.* 366. *Boletus imbricatus is something like it.*)

Tubes very short and slender; pores very minute, blossom colour. *Pileus* very thin, lobed; lobes arched and hanging over each other, an inch wide and 1½ long, leathery, deeply fringed at the edge, surface pustular, mottled, yellow brown or ash colour. *Root* and thickest part of the pileus like cork. Description and drawing from Mr. STACKHOUSE. M. Bulliard's Bol. imbricatus seems something like it, but is a much larger and more luxriant specimen, perhaps also in an older state, for the pores have a deeper shade of colour. It however is more bright in its tints, and wants the warty tubercles on the pileus, so that I dare not cite it as the same.

Comb Wood near Bath. Mr. STACKHOUSE.

*Var. 2. Pileus smooth, downy, sending out root-like suckers from the under side.

Substance hard, leathery. Dull blossom colour underneath. It is rather yellower than the preceding, and had some brown striæ on the pileus.

Found near the former, of which it may be only a variety. Mr. STACKHOUSE.

BOL. Pores angular, purplish, changing to brown: pileus gently convex, wrinkled, woolly, greyish, whiter at the edge. abieti'nus.

Dicks. fasc. iii. 9. 9.

Stemless, generally tiled one upon another. *Pileus* thin, convex but flat towards the edge, wrinkled and knotted, cottony, greyish, paler towards the edge which is thin, and either scolloped or entire. Zones narrow, impressed. *Pores* angular, with one or two prominent teeth. DICKSON.

On decaying trunks of larch trees.

BOL. (BULL.) Tubes yellow red, fringed: pileus bright red brown, rough with bristly hairs. his'pidus.

Bull. 210.

Blood red when young, in middle age the pileus purplish brick red, the pores blackish tawny; in old age black. The plant is stemless, soft, leathery, very fleshy, 4 inches wide. BULL.

Chiefly on old oaks. Specimen sent me by Mr. Stackhouse.

It is possible that this and the Bol. velutinus may not be specifically different.

(4) TUBES yellow.

BOL. (BULL.) Tubes and pores sulphur colour: pileus bright aurora, streaked. sulphu're-us.

Bull. 429—*Sowerby* 135.

Sometimes grows very much tiled, the lobes 40 or more; the whole mass half a yard in length and a foot or more in breadth. In its first state it is soft like a custard. Mr. STACKHOUSE.

TUBES yellow, not longer than 1-10th of an inch. *Pores* very minute, irregular in shape.

PILEUS nearly semi-circular, 6 inches radius, in shape like the under shell of a very large oyster inverted, colour bright aurora, streaked; thin edge bordered with yellow, for about 1-10th of an inch in breadth. *Flesh* thin, soft, white, sometimes stained red near the upper surface, but never yellow. *Stem* next to none, but a thick mass near 2 inches in diameter fixes the plant to the tree.

This is an extremely beautiful plant, and admirably depicted by M. Bulliard. The fine sulphur yellow of the pores flies off in a few hours after the plant is gathered. The aurora colour appears on the yellow parts of the pileus wherever the surface is abraded. Some specimens grow double, one over another, from the same root.

In the cleft of a large cherry tree at Edgbaston, where a similar one was gathered the preceding year, so that it appears to be an annual. 28th June. Woolhope, Herefordshire, and in a yew tree near Kidderminster. Mr. STACKHOUSE.

Var. 2. Pileus pale yellow or buff, thick, tough, elastic, tiled.

Bolt. 75—*Battar.* 34. *B*—*Schæff.* 132—*ib.* 131, *its young pulpy state.*

Bol. coriaceus. Huds. *Bol. tenax.* Lightfoot. In hollows on the trunks of trees. May—Sept.

Var. 3. Pileus white.

TUBES yellow, not 1-20th of an inch in length. *Pores* yellow, irregular.

PILEUS white, covered with a very fine kind of woollen knap: marked with 3 or 4 concentric depressed lines or furrows; 4 or 5 inches over; thin and without tubes at the edge.

On an oak post, at Soho, about a foot from the ground. Aug.*

veluti'nus. BOL. Tubes brown yellow: pores pale brown: pileus very irregular in shape, covered with a dense pile of a silvery grey colour.

TUBES bright gold colour, changing to brown yellow: $\frac{1}{2}$ an inch long. Pores irregular in size, angular, light greyish brown, apparently woolly; largest towards the edge of the pileus and oblong.

PILEUS a very large misshapen mass, covered with a stiff plushy pile consisting of upright hairs $\frac{1}{4}$ of an inch high. Colour silvery grey, or greenish, changing to brown orange, and at length to black. Sometimes 12 inches by 7, and tiled one over another; the surface rather like a sponge, porous and cavernous: the colour varying from grey to green, from red brown to orange brown.

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*(Dr. ROBERT SCOTT of Dublin, on drying a specimen of this fungus, found evolved on the surface a quantity of needle-like chrystals, which proved to be nearly pure oxalic acid. His analysis of the products of this plant is curious, and may be read in Lin. Trans. v. viii. E.)

Flesh several inches thick, chocolate coloured, with a rich red tinge, juicy. In the younger state of the plant the pile on the pileus consists of all colours from pale yellow to deep brown orange, and when magnified appears composed of stars radiating from a centre. It is very beautiful seen through an eye-glass, but its beauty is soon destroyed on account of its tender juicy state. *Flesh* tough, fibrous, brown yellow.

On trees at Edgbaston, Oct. 1790; on the trunk of a fallen oak which had been stripped of its bark about 3 years before, near Beoley, in Worcestershire. Also near Yardley. Aug. Sept. 1792.

Var. 2. Tubes yellow, fringed. *Pileus* covered with a black or brown shag.

Bull. 493---*Bolt.* 161---*Battar.* 33. *D. E. F. G. H.*

Thick, fleshy, soft, juicy. *Tubes* $\frac{1}{2}$ inch long, yellow. *Pileus* 4 inches by 7; flesh 2 to 3 inches thick. Consists of 1 very large lobe, growing out of the upright trunk of an ash. It is very thick in proportion to its width. *Pileus*, its upper side very convex, of a snuff or brown colour, very shaggy; it consists of a thick skin or coat; border deep, furbelowed, projecting downwards considerably below the flat porous surface underneath. *Flesh* woody, tough. *Tubes* near an inch long. *Pores* very minute, bright snuff colour. Mr. STACKHOUSE.

Bol. villosus. Huds.

Var. 3. Tubes and pores golden yellow, irregular. Pileus shaggy, golden yellow to orange brown.

Bolt. 164.

Tubes $\frac{1}{4}$ of an inch long. *Pileus* lobed, tiled. *Flesh* white, leathery. BOLTON.

Grows on the ground, under oak trees.

(5) TUBES green.

BOL. (LINN.) Tubes green, grey, red, or brown: pores yellowish changing to red brown, very fine: pileus shaped like a horse's hoof, smooth, red brown to blackish. ignia'rius.

Sowerby 132---*Fl. dan.* 953, *in a younger state, Bull.* 82, *and* 491, *E. F. in an older state;* 454 *in its younger state—Woodv.* 274.—*Schæff.* 137; 138—*Scop. subt.* 22. 1 and 2— *attar.* 37. *E*—*Trag.* 940.

Bol. acaulis pulvinatus lævis, poris tenuissimis. LINN.

Tubes of different lengths, greenish, or greyish red brown, *Pileus* grey brown, convex, tiled, centre depressed. LINN. *Tubes* very slender, equal, colour of tanned leather, in old plants stratified, a fresh layer being added every year. *Pileus* very hard rubbing to a polish, marked with concentric bands or ridges, each broad ridge indicating the growth of a year, and 3 or 4 small ones that of the different seasons of the year; varying extremely in colour. *Flesh* fibrous. M. BULLIARD. Size, from 2 to 7 or 8 inches over.

Trunks of trees.

Var. 2. Surface not so hard, not rubbing to a polish. Flesh like cork, not fibrous.

Bull. 401—*Bolt.* 80—*Schæff.* 106—*Tourn.* 330.

Var. 3. Circular or elliptical and stratified in a cylindrical form. Pores downy.

Description and drawing from Mr. Stackhouse, who found it on cherry trees. Powick, Worcester.

On various kinds of trees. I have chiefly seen it on the cherry and the plumb. (On willows frequent. SOWERBY. E.*)

fomenta'rius. *BOL. (LINN.) Tubes sea green: pores circular, equal: pileus white, convex, thick at the edge, uneven.

Sowerby 133.

Bol. acaulis pulvinatus inæqualis obtusus, poris teretibus æqualibus glaucis.

Exactly resembling a horse's hoof, white above, hardly villose. Pores numerous, roundish. Serves for tinder. LINN.

Trunks of trees. Jan.—Dec.

Var. 2. Colour uniform. RAY. Syn. 24. n. 15.

On the trunk of an elm tree. HUDSON.

HYD'NUM. Plant horizontal hedge-hogged underneath with awl-shaped substances.

OBS. These awl-shaped bodies which Linnæus compares to the prickles of a hedge-hog, are soft, solid, conical, or cylindrical substances, emitting seeds from every part of their surface. BULL.

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* It is used in Germany and some parts of England for tinder. The Germans boil it in strong lye, dry it, and boil it again in a solution of saltpetre. The Laplanders burn it about their habitations in order to keep off a species of the Gadfly which is fatal to the young rein deer. It has been used to stop the bleeding from arteries after amputations. *Phil. Trans.* vol. 48. p. 588. For this purpose the hard outer part is cut off, and the soft inner substance beat with a hammer to make it still softer. It is best when gathered in August or September.

With a STEM.

HYD. Pileus semi-circular. LINN. sometimes circular. LIGHTF. 1042. auriscalp'ium.

Curt. 190—*Bolt.* 90---*Schæff.* 143---*Fl. dan.* 1020—*Rose* 3. 2—*Mich.* 72. 8—*Gled.* 3; *Boletus f.* 5—*Buxb.* i. 57. 1—*Buxb. hal.* 1. *row* 2, 3. *p.* 129.

May it not be only a variety of H. imbricatum. LINN. This elegant little plant which is excellently described by Curtis, is constantly to be found in Norfolk and Suffolk, in pine groves on a gravelly soil, of a sufficient age to bear cones plentifully. On these, in a state of decay, and on no other part of the plant have I found this Hydnum. Mr. WOODWARD. *Stem* solid, brown, tapering upwards, rather hairy, 1½ to 2 inches high, thick as a crow quill. *Pileus* kidney-shaped, brown, faintly marked with concentric stripes, somewhat hairy, from 1-3d to ¾ of an inch over. *Prickles* grey, conical, pointed.

Under fir trees at Pendarvis, Cornwall. Mr. STACKHOUSE. On old rotten cones, and decayed branches and leaves of firs lying half buried in the ground. In a small plantation of Scotch pines, called Hardy's Grove, near Norwich. ROSE, *ib.*---[Pine Groves, frequent. Mr. Woodward.] Sept. Oct.

HYD. (SCOP.) Stem whitish, very much branched; branches flatted, the ends bent down. DICKS. 19. coralloi'des.

Fl. dan. 450—*Bull.* 390—*Schæff.* 142—*Mich.* 64. 2—*Clus. app. alt.* 18—*Ger. em.* 1582. 4—*Park.* 1323. 24—*Sterb.* 27. *G, at p.* 244.

Large, sitting, tufted and branched, yellow white, nor leathery. Prickles slender; branches towards the ends pendent. When young very like a cauliflower. BULLIARD. Stem branched, fleshy white; branches roundish, thick, nearly horizontal, dividing into other smaller branches, the extremities very much subdivided. *Pileus* none. *Prickles* awl-shaped, crooked, parallel and bundled. SCHÆFF.

Hollow trunks of trees near Uxbridge. Aug.

HYD. (SCHÆFF.) Stem black at the base, woody or leathery: pileus turban-shaped, velvety, purplish. florifor'me.

Schæff. 146, *and* 147. *f.* 2; 6---*Bull.* 453. 2—*Mr. Woodward also authorises me to refer to the following figures; Batsch.* 221. 222—*Mich.* 72. 4. 7---(*Bull.* 156, *seems to be only a variety of this species.*)

Stem swollen at the base, covered with a thick woolly down, and blackish; substance like cork, very elastic when pressed. Frequently two or more plants united at the stem, and sometimes the pilei are also united. *Pileus* at first flat, or very slightly convex, afterwards concave, covered with a fine down resembling velvet to the eye and to the touch: of a fine ash colour, soon turning to reddish purple, and at length black. *Prickles* short, numerous, covering the inversely conical body of the pileus quite to the stem. Mr. WOODWARD. First published as an English plant by Mr. Dickson, fasc. 1. 19, to whom it was communicated by Mr. Woodward. The general shape is conical, ½ to 1 inch diameter at the bottom, and 1½ to 3 inches over at the top. *Stem* red brown. *Pileus* when young, lopped, white, set with shining particles; when older convex but flattish, assuming a gold colour, at length concave and scaly. *Prickles* tiled, pale red. SCHÆFFER.

Earsham wood, Bungay, Suffolk, but rare. Mr. WOODWARD.

imbrica'-tum. HYD. Prickles pale red brown: pileus red brown with darker scales: stem pale red brown or brownish white.

Hydn. stipitatum, pileo convexo imbricato. LINN.

Pileus pale flesh colour; unequal. *Prickles* whitish. *Stem* smooth, whitish flesh colour.

Bull. 409—*Sowerby* 73—*Abbot. Fl. Bed. p.* 319—*Fl. dan.* 176—*Schæff.* 140—*Hedw. th.* 37. 212, *a magn. prickle,* 213 *seeds,* 214 *threads with stamens from the stem*—*Pet. gaz.* 92. 16—*Batsch* 43.

Prickles red yellow. *Pileus* convex, fleshy, pale brown, depressed in the centre, scaly; scales blackish, raised, pointed. SCHÆFFER.

Var. 2. Pileus, edge turned inwards. Stem whitish.

Schæff. 273.

Var. 3. Prickles whitish. Pileus pale flesh colour, smooth.

Mich. 72. 2.

Pileus pale flesh colour, unequal. *Prickles* whitish. *Stem* smooth, white with a tinge of flesh colour. *Fl. suec.*

Woods near Maidstone, Kent. [About Bungay, not uncommon. Mr. WOODWARD.

repan'dum. HYD. Prickles and pileus brownish yellow: stem paler: pileus convex, smooth, waved at the edge.

Hydnum stipitatum, pileo convexo lævi flexuoso. Linn.

Bull. 172—*Bolt.* 89—*Sowerby* 176—*Schæff.* 318 *and* 141 —*Fl. dan.* 310—*Mich.* 72. 3—*Vaill. par.* 14. 6, 7, 8.

Pileus often 6 or 7 inches diameter, with a short stem, exactly resembling the figure of Bulliard. Mr. Woodward. Firm, fleshy, brittle, tawny, yellow. Stem short, whitish. Pileus convex, waved at the edge. Bulliard. *Prickles* bright cinnamon colour, slanting, sometimes cloven, soft and brittle. *Pileus* flat, smooth, cinnamon colour. Flesh white. *Stem* often fasciculated, pale cinnamon, cylindrical. Bolton. *Pileus* depressed in the centre, crooked, much bent down at the rim, leathery, dirty white or buff. *Stem* lateral, crooked, short, horizontal or inclined. *Prickles* numerous, crooked, decurrent, brownish. Mr. Stackhouse.

Woods about Bungay, not uncommon. Mr. Woodward. Near Haughwood, Herefordshire, in a hollow road. Mr. Stackhouse. Sept.

Var. 2. Prickles white: pileus and stem yellow white.

Bolt. 88.

Prickles 1 to 4 lines in length. *Pileus* smooth, convex, sometimes lobed and gashed at the edge, fleshy, brittle, about 3 inches over. *Stem* 3 inches high, ½ to ¾ inch diameter; brittle. Bolt.

In a deep narrow lane near Halifax. Sept. Oct.

Stemless.

Hyd. Nearly stemless, red brown, growing in clusters, leathery lobed: prickles tawny red, tiled. cris'pum.

Schæff. 147. 1.

Resembles the Hydnum floriforme, in every thing but shape, and the want of a stem. Its mode of growth is not unlike that of the thin stemless Boleti.

Found by Dr. Sibthorpe in a clover field near Whitney. See Fl. Oxon. p. 832. Oct.

Hyd. Sitting, tiled, yellow brown, with zones of a darker colour. Davie'sii.

Sowerby 15.

Grows exactly like the Boletus versicolor, and from its coloured zones may readily be taken for it. Fan-shaped; scarcely ½ an inch diameter. Mr. Sowerby speaks of it as a rare species, discovered only by the Rev. Hugh Davies on a decaying apple tree in Llysdulas garden, Anglesea.

erina'ceus. **Hyd.** (Bull.) Heart-shaped, pendent, whitish: prickles tiled, at the ends awl-shaped, yellowish brown. Dicks. ii. 24.

Bull. 34—*Buxb.* i. 56. 1.

Pileus convex, whitish, or yellowish, not leathery, 1 to 3 inches over. *Prickles* very long, yellowish, tiled, hanging down to the depth of 2 or 3 inches. Generally sitting, but sometimes when growing in a deep cleft, its base is elongated so as to form a kind of stem. Bulliard.

On old trees.

min'imum. **Hyd.** (Bolt.) Sitting, tawny, woody; prickles upright.

Bolt. 171.

Semi-globular, adhering by its base to rotten wood, solitary or crowded, dry, tough, leathery or woody, grey with age, 1-10th to ½ inch over. Flesh white. Bolton.

On a piece of rotten oak.

dia'phanum. **Hyd.** White, membranaceous, tender, spreading: prickles short, undivided.

Substance tender, rather gelatinous, forming a thin membrane, on the under side of which, pointing downwards, are found the prickle-shaped substances, of the same colour with the membrane. I know not how the Hydn. mucedo differs from this.

Growing under a hollow bank near Solihull, and found there 2 successive years by the Rev. Mr. Bree. Oct.—Nov.

Barba-jovis. **Hyd.** Tawny, membranaceous, spreading, the ends of the prickles pencil-shaped.

Bull. 481. 2.

I have not seen it in fruit, but the representation of it in that state in Bulliard's figure is not unlike the fructification of the Byssus fulva in Plate xviii. f. 5. *a.*

On the under side of decayed wood lying on the ground. Oct.

HELVEL'LA. Pileus on a stem: smooth on both sides: seeds thrown out from the under surface.

agaricifor'mis. **Helv.** (Bolt.) Stem cylindrical, white: pileus hemispherical, white.

Sowerby 57—*Bolt.* 98. 1.

Stem ½ an inch high, not thicker than a pin. *Pileus* the size of a rape seed. Grows single or in clusters. Bolton.

Woods in moist and shady parts about the roots of trees, under mosses. About Halifax.

Helv. Stem cylindrical, white, smooth: pileus lobed and crumpled, white above, brown underneath. na'na.

Pileus snowy white, leathery, hard, crumpled and deflected in various forms; smooth and brown underneath; about 3-10ths of an inch over. *Stem* white, solid, smooth, not at all wrinkled, ¼ of an inch high; thick as a crow quill. Mr. Stackhouse; who found it growing amongst moss on a shaded bark under trees, near Pendarvis, Cornwall. Aug.—Sept. 1791.

Helv. Stem semi-transparent, ribbed, grooved: pileus, lobes growing to the stem. mi'tra.

Helvella pileo deflexo adnato lobato difformis. Linn.

Sowerby 39—*Bull.* 466 *and* 190—*Schæff.* 154. 282. 162—*Fl. dan.* 116—*Mich.* 86. 7 *and* 8—*Gled.* 2. *Elvela f.* 3—*Battar.* 3. *B. G.*

When old turns quite black, which is the reason why Schæffer has figured it so many times. Mr. Woodward. It is extremely variable, the stem from ½ to 2 inches diameter, from 1½ to 4 or 5 inches high; the colour from that of colourless horn to pearly, to brown and almost to black. The pileus not less variable in shape and size than the stem. The specimens before me may be described thus: *Stem* or rather a bundle of stems, about 3 inches high, nearly pellucid; connected together by places, often serpentine, ribbed and grooved; from 1 to 2 inches diameter. *Pileus* covering several stems united together, rather brownish, thin; brittle and tender; hanging over. Its under surface seems granulated, and is of a pale brown.

Near Bungay, but rather rare. Mr. Woodward. Close to the wall by the upper stew, at Edgbaston. Aug. Nov.

Helv. Greyish brown, paler at the edges: stem inversely conical, crooked, smooth: pileus funnel-shaped, the edge thin, curled and plaited. florifor'mis.

Sowerby 75—*Bull.* 465. 1—*Schæff.* 278.

Grows single or in clusters; substance leathery. Schæff. From 1 to 3 inches high: stem solid. Pileus from ½ to 2 inches over.

Helv. crispa. Bull. Found by Mr. Dickson in woods.

Helv. (Dicks.) Almost sitting, leathery, in clusters; caryophyllæ'a.

pileus funnel-shaped, cut at the edge, brown, with flock-like radiated scores.

Sowerby 213—*Bull.* 483. 6, 7, *and* 278—*Schæff.* 325--*Willd.* 7. 15.

Grows solitary or in clusters; leathery. *Pileus* funnel-shaped, brown, marked with concentric circles and radiating lines of darker and lighter shades of colour, variously cut and jagged at the edge, nearly 1 inch over. *Stem* tapering downwards, solid, brown, often crooked, thicker and lopped at the root, frequently eccentric, 1-3d of an inch high, half as much in diameter. SCHÆFF.

On the ground in plantations of firs near Bungay, Suffolk. Mr. WOODWARD *in Dicks.* [Near the ground on the inside of a tuff wall inclosing a plantation of firs near Ampthill, Bedfordshire, opposite Lord Ossory's Park on the right of the road to Wooburn. Mr. KNAPP.]

cartilagin'ea. HELV. (BOLT.) Stem very short: pileus convex, flattish scarlet, smooth.

Bolt. 101. 1.

This plant is firm, gristly, semi-pellucid; the colour deep orange, or scarlet. *Stem* solid, very short. *Pileus* smooth, rather slippery; border thin. BOLTON.

On old walls and rocks among moss.

gelatino'sa. HELV. Yellow; pileus arched, edge rather lobed, puckered underneath, gelatinous within: stem hollow.

Bull. 473. 2—*Sowerby* 70—*Fl. dan.* 719.

Grows in clusters. *Stem* as thick as a goose quill, thicker downwards; about 3 inches high. *Pileus* near 1 inch in diameter.

Found by Mr. Relhan at Hallwood, also at Wood-Ditton. Oct.

Var. 2. Pileus dusky olive brown: stem rich yellow.

Pileus $\frac{1}{4}$ to $\frac{1}{2}$ inch over; unequally lobed, and very much rolled in at the edge. *Stem* hollow, semi-transparent; glutinous from 2 to $2\frac{1}{2}$ inches high, of a beautiful rich yellow colour; tapering upwards: sometimes forked at the top and bearing 2 heads.

In clusters under beeches, in the Red Rock Plantation, Edgbaston. Sept.

clava'ta. HELV. (SCHÆFF.) Plant yellow: pileus sloping: stem somewhat compressed. DICKS. 1. 19.

Hoffm. crypt. ii. 6. 1—*Schæff.* 149—*Mich.* 82. 2—*Vaill.* 13. 7. 8 *and* 9.

Plant soft, fleshy, solitary or in clusters. *Pileus* yellow, oval, compressed, slanting uneven at the edge, near 1 inch long, and ½ an inch broad. *Stem* solid, yellow, swollen at the base, tapering upwards, 1½ inch high, 1-3d inch diameter at the base, 1-6th at the top. SCHÆFFER. Grows in clusters. Sometimes 2½ inches high. *Stem* solid, tapering upwards. *Pileus* flatted at top, the edge turned in and waved. Whole plant slimy and gelatinous.

Woods in Autumn. Under beech trees, Pendarvis, Cornwall. Mr. STACKHOUSE.

HELV. Stem hollow, cylindrical, yellow: pileus yellow brown, with reddish streaks, conical. Relhani.

Sowerby 11.

Stem about 2 inches high, thick as a crow quill. *Pileus* acutely conical, hardly ½ an inch from the base to the apex, the edges slightly fringed.

First found by the Rev. Richard Relhan, on the North side of Gogmagog Hills.

HELV. (BOLT.) Stem short, yellow: pileus umbrella-like, gold coloured. aurea.

Sowerby 150—*Bolt.* 98. 2.

Stem 1-10th to 2-10ths of an inch high, tapering downwards, solid. *Pileus* convex, flattish, thin at the edge, golden yellow above, paler underneath, ¼ of an inch over. The plant is brittle, watery, and semi-pellucid. BOLTON.

Woods in moist watery places on sticks and stems of plants.

(*Peziza aurea.* SOWERBY. E.)

HELV. (BOLT.) Stem short, black: pileus rather convex, yellow: dusky black underneath. fibulifor'mis.

Bolt. 176.

Stem solid, firm, a line in length. *Pileus* gently convex, but flat at the top, hard, smooth, slippery, hardly ¼ of an inch over. BOLT.

On a branch of the root of an elm within reach of the sprinklings of a stream.

HELV. (OEDER.) *fl. dan.* ix. 7. With a stem: very ærugino'sa.

small, bright green: pileus of various shapes. Dicks. ii. 24.

Fl. dan. 534. 2.

Hardly a quarter of an inch in height. Pileus concave, generally slanting, uneven at the edge and very irregular in shape. On rotten wood.

fuligino'sa. Helv. (Schæff.) Stem hollow, greyish: pileus inflated, angular, plaited, blackish.

Bull. 242—*Bolt.* 95—*Sowerby* 154—*Schæff.* 320.

Stem dusky white, greyish, hollow, uneven, twisted and furrowed, 2 to 4 inches high, thick as a goose or raven quill. *Pileus* pale olive to dark sooty colour, brittle, thin, very irregular in its shape, depressed into angles and lobes, 1 to 2 inches over. Schæff. Bolt. Bull. *Stem* slenderer than in the H. mitra, not cavernous or wrinkled, elastic, soft. Grows many together, Pendarvis, Cornwall. Mr. Stackhouse.

Moist woods and hedges, not common.

pla'na. Helv. Pileus flat, livid; stem smooth. Huds. 633.

Woods. Aug.—Oct.

AURICULA'RIA. Flat, membranaceous, fixed by its whole under side, but becoming detached and turning up with age. Seeds discharged slowly from what was the upper, but is now, in its state of maturity, the under surface.

Obs. These plants when young lie flat and are closely attached to the substance on which they grow, the upper surface being smooth, but the under surface shaggy with hairs which serve the purpose of radical fibres. After some time the attachment formed by these fibres loosens, and the plant turns up more or less, but remains still attached in some one part, either central or lateral. The smooth upper side is now become the under one; and from this the seeds are discharged. The fibrous surface, now uppermost, continues shaggy or woolly, often becomes streaked or zoned in concentric stripes, and frequently assumes a variety of colours. A process similar to this takes place in some of the stemless Agarics and Boleti. See Ag. quercinus and Bol. versicolor.

ferrugin'ea. Aur. (Bull.) Perennial, leathery, thin, zoned above, smooth underneath, but pimpled, brown, rusty red.

Bull. 378—*Sowerby* 26—*Bolt.* 82. *d.*—*Mich.* 66. 2.

Grows very much tiled. The zones more apparent on the upper than on the under surface, about 1 or 1½ inch wide, and half as much in breadth. M. Bulliard observes that if a portion of the under side be dissected from the upper coat, it appears perforated in the microscope.

Helvella rubiginosa. Dickson. Ray *Syn.* p. 22. n. 5, who describes it as 6 inches wide and 2 broad. Common on old pales, &c. near the ground. On an oak door in an area at Edgbaston. P. June.

Aur. (Bolt.) Annual, thin, flexible, curled and lobed at the edge; pale rust colour, with a yellow border. nicoti′ana.

Sowerby 25—*Bolt.* 174.

From 1 to 2 inches over; nearly flat. *Upper surface* soft, smooth, but uneven. *Under surface* veined, wrinkled, naked. Bolton.

On dry wood, and decayed branches of trees. Feb.

Aur. (Bull.) Annual, membranaceous, soft, zoned and woolly above, smooth underneath, but pitted when old. papyri′na.

Bull. 402.

It varies greatly in size according to its age, from 1 to 4 or 5 inches over. When young the edges are fringed, when old scolloped and lobed. The upper surface is greyish white, the under buff coloured and cellular. Bulliard.

Mr. Robson, of Darlington, authorizes me to insert this as an English species.

On the decaying trunks of trees.

Aur. (Bull.) Leather-like, thin, smooth, white above, pale brown underneath. cortica′lis.

Bull. 436. 1.

Spreading flat on the dead sticks to which it adheres; brown white, soft to the touch, pitted or pustular almost like some of the foliated Lichens. The pile on the under surface by which it adheres, brownish. The edges turn up on every side, so that when its figure is circular it appears raised and fixed by its centre like a stemless Peziza. The circular pieces from ¼ to ½ inch diameter: the oblong ones from ½ an inch or more in width, to 5 or 6 inches in length.

On decaying peasticks lying on the ground, not uncommon. Aug.

phylac'teris. AUR. Biennial; membranaceous, soft, smooth, curled or plaited at the base: yellow white, changing to dark brown.

Bull. 436. 2.

Grows at the roots of trees, sometimes on stones, spreading over and clasping them, but without any adherence by fibres. It varies much in form, extending some inches in length and in breadth; its edges fringed. When young it is pale straw colour, dark brown when older, and at length brown black. BULLIARD.

Found by Mr. Relhan in Madingley wood. Sept.

Var. 2. Red brown, with darker veins.

Batsch. 121—*Fl. dan.* 1198.

This plant was first shewn to me by Mr. Norris, who found it growing on sandy banks upon a heath near Bromham. It has a hard woody root or knot, from whence it expands in the shape of a fan, to the extent of ¾ of an inch. The substance is hard and stiff when dry, but readily imbibes moisture and instantly becomes as soft and pliable as wetted glove leather. The upper surface is much puckered and knotted, the under side marked with woody nerves radiating from the root, but rather laid upon the surface than imbedded in the substance. The plant is of a dull reddish brown, the woody nerves very dark brown. In time it becomes reversed, and the ends and smaller branches of the nerves detaching themselves from the foliage appear like bristles.

Further observations are wanted on its younger state. It will probably prove to be a new species. Mr. Norris says it is a perennial, and continues long unaltered.

Ag. tristis. Batsch.

reflex'a. AUR. (BULL.) Perennial, leathery, thin, woolly and zoned above, smooth underneath.

Bull. 274 *and* 483. 1, 2, 3, 4—*Sowerby* 27—*Bolt.* 82. *a. c. b. e.*

Substance tough, cutting like hard leather, or cork. Often grows tiled. *Upper surface* like plush, varying from pale buff to deep yellow, when fully grown marked with zones of various colours, as green, grey, buff, yellow, purple, brown. *Under surface* (whilst young, the upper one) smooth, varying in colour from pale buff to deep yellow. From 1 to 2 inches wide, and about half as much in breadth. From the stems of grass and other substances with which it is often perforated, it is clear that it must have had a gelatinous consistence in its younger state.

Ray Syn. p. 21. n. 2. *Helvella villosa.* Relhan. *Boletus auriformis.* Bolton. *Helvella acaulis.* Hudson.

H. pineti. Linn. is a different plant. Does not perhaps agree *very* well with the genus Helvella, but as it has no appearance of *pores* even when magnified it has no pretensions to be arranged as a Boletus. Mr. **Woodward.**

On stumps of trees and rotten wood, not uncommon. [On old stumps of trees in woods frequent. Mr. **Woodward.**]
P. Jan.—Dec.

Aur. (**Bull.**) Perennial: substance cartilaginous but gelatinous; woolly, spongy, grey brown above, smooth, pitted, violet coloured underneath. tremelloi′des.

Bull. 290—*Bolt.* 172—*Mich.* 66. 4.

M. Bulliard says that though it is mostly a portion of a circle, yet sometimes the two edges unite, forming a cornucopia. Mostly about 2 inches one way, and half as much the other. Mr. Bolton observes that his specimens were not cellular on the outside as represented by M. Bulliard. The under surface often with a bloom of a pale blue like that on plumbs. Gelatinous underneath. Mr. **Knapp.** Begins growing with the smooth surface upwards, but the edge afterwards turns over, and then it grows tiled to a great extent, in the manner of Boletus versicolor. It is a very common plant, and though mentioned by Ray, is not noticed in Hudson. Mr. **Woodward.**

Helvella mesenterica. Dickson. *Tremella corrugata.* Relh. n. 398, according to Mr. Dickson fasc. ii. 28. On rotten wood and stumps of trees. [On the earth at the edges of sawpits, and at the bottom of gate posts. Mr. **Knapp.**]
A. Jan.—Dec. **Relh.**—Oct. Nov. Mr. **Knapp.**

PEZI′ZA. Plant concave: Seeds on the upper surface only: discharged by jerks.

With a Stem.

P. Wholly white: stem slender: pileus glass-shaped. nive′a.
Dicks. Hall. 2339.

Sowerby 65—*Mich.* 86. 15.

The young plants with their snow-white soft hairs contracted into a kind of globe resembling a Clathrus. **Dickson.** Not bigger than half a hemp seed, thin as silk paper; and snow-white. Mr. **Stackhouse.** About 1-10th of an inch in height, and the pileus nearly as much in breadth.

On trunks of dead trees. **Dickson.**—Rotten wood and sticks. **Relh.**—[On moss on the trunks of apple trees; Powick, Worcester. Mr. **Stackhouse.** Aug.—Sept.

Var. 2. Stem as long as the height of the pileus, very distinct from it: plant wholly white, hair less.

Growing in clusters on a rotten stick; Packington.

Autumn.

calycifor'mis. P. Glass-shaped, disc of the pileus tawny with a white border: stem white, thick.

Hedw. stirp. ii. 22. *B—Batsch* 135.

Pileus at first convex, with age turning up.

On the trunks of trees and on the fallen branches of firs.

Autumn.

trunca'ta. P. White, conical, lopped, bordered.

Stem scarcely distinct from the pileus. Pileus white, slightly concave, bordered, not dotted.

At Packington, growing on moss. Autumn.

I have seen a beautiful drawing of another of this kind gathered at the same place, but later in the year, in which the pileus had attained a yellow colour, and the border was studded with brown specks. I apprehend this to be the same plant in its more mature state, and the brown specks to be the fructification.

puncta'ta. P. Turban-shaped, lopped, the disc of the pileus white, dotted. LINN.

Bull. 252.—*Sowerby* 54—*Bolt.* 127.2—*Fl. dan.* 288.

Seeds contained in pores, from whence they are thrown with an elastic force. GLED. cited in Linn. suec. n. 1275. The black dots consist of seeds immersed in the substance of the plant. LINN. *Stem* dark grey to black, $\frac{1}{4}$ to $\frac{1}{2}$ inch high, tapering downwards. *Pileus* an expansion of the upper part of the stem, concave, white, with black dots, $\frac{1}{4}$ to $\frac{3}{4}$ inch diameter. Substance dry, tough and elastic. BULL. BOLT. Mr. Woodward thinks this may more properly rank as a Sphæria: and observes that it is very common about Bungay.

On horse and cow dung, and dry dunghills.

May—Oct. HUDS.—Winter and Spring. BOLT.

acetab'ulum. P. Stem short: pileus glass-shaped: angular on the outside; with branching veins.

Bull. 485. 4—*Sowerby* 59—*Vaill.* 13. 1—*Mich.* 86. 1.

The largest of the genus; thin, brittle, smooth, transparent like wax. *Stem* woody, brown, short, branching up the base of the pileus, solid, nearly $\frac{1}{2}$ inch long, and $\frac{1}{4}$ diameter. *Pileus*

2 or 2½ inches over, greatly cupped so as to resemble a goblet or bowl, ¾ to 1¼ inch deep, waved at the edge, red brown within, pale brown without. Sometimes without the angular branchings from the root. Bulliard. Nearly allied to P. cochleata, the external veins and the regular form constituting the principal differences. It grows near Bungay, but is not so common as the P. cochleata. Mr. Woodward.

On rotten wood in hedges and woods, rare. (On the earth. Sowerby. E.) Sept.—May.

P. (Huds.) Stem cylindrical; pileus slightly concave; brown; hairy on the outside. stipita'ta.

Sowerby 38—*Bolt.* 96—*Fl. dan.* 1200. 2—*Schæff.* 167—*Bull.* 196.

Mr. Bolton's figure well as to its habit, but the hairiness on the outside not expressed. Mr. Woodward. *Stem* solid, brown, 2 to 3 inches high; thick as a crow or a goose quill, rather tapering upwards. *Pileus* thin, brittle, semi-transparent, brown, gently concave, woolly on the outside, 1 to 2 inches over.

Woods near Guildford. Huds. Woods below Highfield, 3 miles from Halifax. Sept.

P. (Dicks.) Stem growing at the base to a blackish fungous tuberous substance: pileus nearly bell-shaped, brown without, paler within. tubero'sa.

Bull. 485. 3—*Hedw. stirp.* ii. 10. *B.*—*Sowerby* 63.

Stem unequal, buried up to the head within the soil. Dicks. One to 2 inches high, thick as a crow quill, pale buffy brown. *Pileus* funnel-shaped, buffy brown within, darker brown on the outside, 1-3d of an inch high, and ¼ or more in diameter. *Root* fixed to a black brown mass, seemingly a dead root of the Anemone nemorosa. Hedwig. *Stem* 1½ inch high, rather thinner than a crow quill. *Pileus* wide funnel-shaped, ¾ of an inch over. Bulliard.

In grassy spots in woods, near London.

P. (Dicks.) Stem slender, tapering downwards; pileus brown, hemispherical, smooth: root simple, with minute fibres. radica'ta.

Bull. 485. 2—(*Reichard, in Besch der Berlin. gesellsch.* 3. *p.* 214. *t.* 4. *f.* 4. 5. 6; *on the authority of Mr. Dickson.*)

Thin, brittle, smooth. *Stem* slender, ½ inch long, furnished with a fibrous root. *Pileus* yellow brown, ½ to 1 inch over, concave, shallow. Bulliard.

In woods, taking deep root in the ground. Sept.

minu'tula. P. Stem brown, very short: pileus brown, nearly flat.

Batsch. 39. 217.

Stem not quite 1-20th of an inch in height, and slender in proportion. *Pileus* about as much in diameter, nearly flat, the edge a little turned up, not hairy.

P. spadicea. Batsch. Relhan *suppl.* 28. On a decaying stick; Edgbaston. 27th Nov. 1790.

çupula'ris. P. Stem very short and thick: pileus more than semi-globular, bell-shaped, pale buff, scolloped at the edge.

Bull. 396. 3—*Vaill.* 11. 1, 2, 3—*Mich.* 86. 2.

The distinguishing marks of this species, are the scolloped edge, and the greyish colour of the outer surface. Mr. Woodw. *Stem* ¼ of an inch high and half as much in diameter. Sometimes there is no stem. *Pileus* pale buff, thin, transparent, scolloped at the edge. shaped like the cup of an acorn: about 1 inch diameter.—The scolloped edge, so remarkable in M. Bulliard's figures, is sometimes scarcely perceptible: whole plant cream colour; outer surface, especially in the younger plants, frosted and granulated. The shape when growing luxuriantly varies from a saucer to a wine-glass and even a globe with a very small orifice, and is sometimes an irregular confused mass. It is found from ½ an inch to 2 or 3 inches in diameter:—a beautiful Peziza.

Shrubbery, in mossy turf by the side of the gravel walk, near the house at Edgbaston.—On soil in the hot-house at the Larches. March—Sept.

citri'na. P. Plant yellow: stem short, thick: pileus cup-shaped, but shallow, and flat within.

Hedw. ii. 8—*Sowerby* 151.

About 3 lines high when fully grown, succulent when of middle age; smooth and of a fine yellow. Hedw.

Found by Dr. Sibthorpe on rotten wood in Shot-over plantations. Sept.—Oct.

undula'ta. P. (Bolt.) Stem hollow, gradually expanding into a funnel-shaped pileus; red yellow and veined on the outside, rich brown within.

Bull. 461—*Schæff.* 157. 2—*Bolt.* 105. 2.

Plant about 1¼ inch high. Pileus ¾ of an inch over, marked with a few almost imperceptible veins on the outside, smooth within, waved and curled at the edge. Bolton. Schæffer has figured this plant extremely well, and calls it an Helvella; but out of the numerous figures in the 157th plate, Mr. Bolton refers only to fig. 2, though Schæffer makes no distinction. Batsch refers to Schæffer's plate, without restriction, as his Agaricus aurora, which he himself has figured, though indifferently, pl. 9. f. 36. Bulliard calls it Helvella tubæformis, and makes also an unlimited reference to Schæffer 157. The plants represented by M. Bulliard are much larger than those of Mr. Bolton, and the gill-like veins much more distinctly marked. I believe this species is neither an Agaric, an Helvella, nor a Peziza, but more properly belonging to the Genus Merulius.

In woods, but not common. Oct.

P. Stem buff: pileus glass-shaped, crimson within, buff on the outside. coccin'e

Bull. 467—*Bolt.* 104—*Sowerby* 12 & 78—*Walcot, P. cyathoides—Jacq. austr.* 163—*Battar.* 3. *N. O—Penn. Wales—Mich.* 86. 5.

Root short, white within. *Stem* solid, from 1-10th to ½ inch high; thick as a crow or a goose quill. *Pileus* thin, cupped, rather elastic, but brittle, deep carmine colour within, buffy underneath, with mealy granulations.

Peziza epidendra. Bull. and Sowerby; (the latter observer still thinks it a distinct species. E.) by mistake called pl. 13. in the text. On rotten sticks in woods and wet hedge bottoms. [With a north or eastern exposure. Mr. Woodward.]

Spring—Autumn.

Var. 2. Irregularly cupped, border waved, scarlet within, buffy or whitish brown on the outsides, stem none, but a hard, black knotty root.

Bull. 474—*Bolt.* 100—*Schæff.* 148—*Fl. dan.* 657. 2—*Batsch* 158.

Shaped like a butter-boat. Mr. Stackhouse. This plant is most excellently figured by Bolton. The colour is usually a bright deep orange above, and a dirty orange or yellow beneath, in which it differs from Bolt. 104, which is always a rich scarlet within, and white and silvery without. It differs also in being irregular in shape, never cup-shaped, except when very young, whilst the other is always exactly cup-shaped, and stands on a short pedicle. Whether Mr. Hudson's cyathoide be the elegant and very uncommon plant figured by Bolton 104, seems doubtful, neither Dillenius's fig. nor short description in the Synopsis at all elucidate the matter, and it certainly can never be called yellow. The first of these is rather scarce, but the other is very common on decayed sticks under hedges in the spring. Mr. Bolton is certainly mistaken in asserting that his 104 never emits any powder from its internal surface, for I have repeatedly by a slight irritation, caused the mature plants to throw out clouds of smoke. It ought, therefore, according to his principles, to have been placed with the Helvellæ. Mr. WOODWARD.—Thinner, more spreading and more irregularly cupped than the preceding; sometimes quite sitting, with a small, nearly central root; sometimes the root a pretty large black knob, and sometimes it forms a short stem.

Helvella coccinea. BOLT. *Peziza coccinea.* BULL. On the ground, amongst gravel and road sides; when it resembles the most sessile of the figures. I once found it on the stump of a tree, with more of a stem and less spread out, forming the connection between the two varieties.

Malvern Hill, and Coplar Hill, amongst wet moss. Mr. STACKHOUSE. Oct.

tu'ba. P. Plant yellow: stem thread-shaped: border flat.

Bolt. 106. 1.

See Merulius tubæformis.

inflex'a. P. (BOLT.) Stem crooked; pileus funnel-shaped, fringed at the edge, pale buff.

Bolt. 106. 2—*Mich.* 86. 13.

Stem white, pellucid, always bent. *Pileus* pale buff within, funnel-shaped, fringed at the edge. Whole plant about ½ an inch high. BOLTON.

On rotten vegetables in damp places in woods and about rivulets. In Madingly wood, Cambridgshire. Mr. RELHAN.

ochroleu'ca. P. (BOLT.) Stem black at the bottom: pileus funnel-shaped, dirty yellow within.

Bolt. 105. 1—*Sowerby* 115.

Plant hard and leathery. *Stem* solid, black below, dusky yellow above, near ½ inch high, thick as a large pin. *Pileus* funnel-shaped, ochrey yellow within, smooth, even at the edge, about ¼ of an inch over. BOLTON.

Near Halifax in several places.

cyathoi'des. P. Stem short: pileus yellow, glass-shaped, border blunt, upright.

R. Syn. 24. 4, *at p.* 478.

Stem very short. *Pileus* flattish, but slightly concave, yellow, border smooth. RAY *Syn.* p. 18. n. 8. About ¼ of an inch high, and the same in diameter at the top.

On rotten wood. Aug.—April.

P. (Batsch.) Stem rather long, strap-shaped, firm, distinctly inserted: pileus concave, hemispherical, expanding. calyc′ulus.

Bull. 416. 3—*Hedw. stirp.* ii. 9. *C.*—*Batsch.* 57—*Sowerby* 116—*Mich.* 86. 14.

The whole yellow. *Stem* 2 lines long. *Pileus* 2 lines wide. Relhan. Its colour varies in different shades of yellow, and its pileus is either nearly flat, or cupped in various degrees of hollowness. The figure of Bulliard is excellent, and he well observes that it grows upon the annual shoots of branches.

On rotten wood in Madingley plantations. August. On half rotten sticks, Edgbaston. Oct. On rotten wood. Nov. Dec. Mr. Knapp.

P. (Bull.) Stem slender tapering: pileus slightly concave; pale yellow. fructig′ena.

Bull. 228—*Batsch.* 150—*Sowerby* 117.

Opake, leathery, fleshy, funnel-shaped. *Stem* ½ to ¼ inch high, tapering downwards, often bent in different directions. *Pileus* 1-10th to 1-4th inch diameter, funnel-shaped, but the hollow above not deep on account of the thickness of the flesh.

M. Bulliard says he only finds it on the coriaceus fruits, as acorns, chesnuts, &c. and Batsch says his grew on the seeds of a hornbeam; but though the fruit of such trees may be its more common nidus, I found it growing in large clusters on a rotten stick in the month of Oct. 1791. Mr. Relhan informed me, that he had found the plant of Batsch in Madingley wood, but omitted to say on what it grew.

STEMLESS.

P. White; glass-shaped, membranaceous, thin at the edge. cuticulo′sa.

Dicks. iii. 9. 11.

Very minute. Found by Mr. Forster growing on putrid grass. Dicks. *fasc.* iii. p. 22.

P. Pinky white, saucer-shaped, quite smooth. al′bida.

From ¼ to ¾ of an inch diameter; whilst small shaped like a goblet, when full grown flat at the bottom but the edge always turned up like a saucer; perfectly smooth, thin, semi-transparent, watery white, with a tinge of pink within.

On the cellar floor at Greenbank near Birmingham, in the joints of the bricks. Sept.

margina'ta. P. (Relhan.) concave, brownish; edge flat, somewhat scolloped, snow white.

Sowerby 16—*Fl. dan.* 779. 1.

Very beautiful, when viewed by the naked eye very much resembles the saucers of *Lichen subfuscus*, but examined with a microscope it resembles the eyelet holes of stays. Relh. From this description I had supposed it might be the work of an insect, similar, except in colour, to one which is frequently found upon oak leaves, but on stating this doubt to Mr. Relhan, he very obligingly sent me specimens which at once convinced me it was a plant. It is not larger than the head of a pin.

On decayed wood at Whitwell, near Coton, Cambridgeshire. Sept. Oct.

auri'cula. P. Brown, concave, wrinkled, shaped like an ear.

Bull. 427. 2—*Clus.* ii. 276—*Ger. em.* 1581, *(misprinted* 1481.) 1—*J. B.* iii. 841. 1—*Sterb.* 27. *H. H. at p.* 244 *Blackw.* 334—*Mich.* 66. 1—*Gled.* 2, *the upper middle fig.*—*Battar.* 3. *F.*—*Gars.* 115. *B.*

This is either a Peziza or Helvella, and not belonging to Tremella, which should be perfectly gelatinous. Mr. Woodw. Wide spreading, 1 to 2 inches over, soft but cartilaginous, sitting, thin, fibrous and downy underneath, cupped, plaited, reddish brown. Bulliard.

Tremella auricula. Huds. On rotten wood. [On old elders in gardens at Yarmouth. Mr. Woodward.] A. Sept.—May.

Var. 2. Dark olive colour.

Bolt. 107.

One to 4 inches over. Smooth above; granulated underneath. Bolton.

On a willow tree. Feb.

Var. 3. Dark olive above; blackish brown underneath. From 2 to 4 inches over; much curled in; brittle, cracking at the edge. It throws out a smoke like powder. On exposed gravelly soil, and under fir trees at Heathfield. June—Sept.

cochlea'ta. P. Thin, brittle, brown, large, concave, irregular, the sides tearing and curling in.

Peziza, turbinata, cochleata. Linn.

Bull. 154—*Sowerby* 5—*Bolt.* 99—*Fl. dan.* 1077. 2—*Jacq. misc.* ii. 17. 1—*Batsch.* 157—*Schæff.* 274. 155. 150.

Sitting, hemispherical, or ear-shaped, or spoon-shaped, dark blackish brown above, white underneath, branching veins shooting from the centre. **Jacquin.** From 1 to 2 inches over, or more, semi-transparent, the form extremely variable, the edge cooped in, cracking, tearing and then curling inwards, Varies in colour from a dirty straw to brown, and sometimes purplish. Mr. Bolton considers it as an Helvella, because it emits its seeds in form of smoke or powder when irritated, but the Pezizas possess the same property. The real difference between them is, that in the Helvella the seeds are ejected from the under, in the Peziza from the upper surface, as is well pointed out by M. **Bulliard.**—P. cerea, 44. Bull. and Helvella visiculosa. Bolt. 175, seem only varieties of this. Mr. **Woodward.** I have found it with a stem about 1-10th of an inch in length; these plants were from ½ to 2 inches over.

Woods, on the ground, or on decayed branches of trees. [On a dunghill near Bath. Mr. **Stackhouse.**—Rookery, Edgbaston, on the ground, and on rotten wood.] Sept. Oct.—July.

P. Concave, brown, pale at the edge. **Bolt.** 109. fus′ca.

Bolt. 109. 2.

Adhering by its whole outer surface, except the edge which is turned up; thin and of a pale olive colour; from ¼ to near ½ inch over. **Bolton.**

In several places about Halifax, on old dry dunghills.

P. Olive brown, flat, dotted; border turned in, smooth. stercora′ria.

Vaill. 13. 14—*Bull.* 376. 1—*Sowerby* 18.

Scarcely a line broad.

On horse and cow dung, and on gravelly soil. [On the bark of a tree. Mr. **Knapp.**—About Bungay, common. Mr. **Woodward.**]

P. Grey white, nearly flat; with a brown yellow border. pine′ti.

Batsch 26. 140.

Fixed by the centre; at first concave, the edge rolled in; at length raised and the border depressed. Brownish at first, the centre paler, but becoming whiter, and sometimes tinted with ochrey pink. Substance fleshy, opake. **Batsch.**

Found by Mr. Relhan in Madingley plantations, on the cones of fir trees. Sept.

P. Concave, dull yellow, smooth, brittle, thin. chryso′coma.

Sowerby 152—*Bull.* 376. 2.

At first a hollow bladder, opening at the top, and when old nearly flat. Colour pale dull yellow to red orange. So small as not to be well distinguished by the naked eye. Bull.

Found by Mr. Relhan near Gamlingay, on rotten wood. Sept.—Oct.

hepat'ica. P. Dark purple, with a hollow dot in the centre.

Batsch 138.

Substance horny, colour very dark purple, or tawny-liver-colour. *Pileus* circular, or kidney-shaped, with a hollow dot in the centre over where the root is fixed. Not more than 1-20th of an inch over. Batsch.—Mr. Relhan lately informed me that he had found this species at Wood Ditton.

In woods on the ground amongst moss. Autumn. Batsch.

punic'ea. P. (Batsch.) Flattish, yellow red within, paler on the outside; edge thick, but little raised.

Batsch 220.

Substance hard and horny, thin, pale red, neither woolly nor hairy, wrinkled on the upper surface; brittle when dry.

Found by Mr. Relhan amongst the leaves of the Bryum murale, on old walls at Ditton, Cambridgeshire. On half rotten sticks at Edgbaston. 7th Oct. 1791.

scutella'ta. P. Flat, orange red; border raised, hairy.

Bolt. 108—*Bull.* 10, *and* 438. 2—*Sowerby* 24—*Batsch* 54—*Hedw. stirp.* ii. 3. *A.* 1 *to* 7—*Hoffm. crypt.* ii. 7. 3—*Schæff.* 284—*Ray Syn.* 24. 3, *at p.* 479—*Vaill.* 13. 13—*Mich.* 86. 19 *and* 17.

Orange red within, buff on the outside, hairy at the edge; about 1-8th or 1-10th of an inch over, when young like a goblet, flatter with age, but the edge still turned up.

On cow dung, common; also on rotten wood. March. Oct.

Var. 2. Smooth at the edge.

Bull. 438. 3.

Stemless; orange-coloured, nearly flat, not fringed at the edge, ¼ of an inch diameter.

Pez. fulva. Huds. and Bot. arr. *ed.* ii. On cow dung and amongst moss on a clayey soil, Edgbaston, common. Aug. Sept.

Var. 3. Woolly and white on the outside.

Sowerby 17—*Bull.* 410. 3.

M. Bulliard observes that the pileus closes in dry and opens in wet weather. Flat, blood red, hairy; sometimes as large as a six-pence. Mr. STACKHOUSE.

Specimen, and a beautiful drawing of it sent to me by Mr. Knapp, who found it on dead sticks in a wood in Buckinghamsh. On bogs, Cornwall.

Var. 4. Orange red: border white, divided into strap-shaped segments rolled back.

Very small, not above a thirtieth of an inch in diameter.

Grows in circles, or in circular spots on the under side the leaves of Tussilago farfara.

Bank of the pool dam; Edgbaston. Aug.

P. (BULL.) Large bladder-shaped, thin, brittle, dull yellow. **vesiculo'sa.**

Bull. 44. *and* 4571.—*Sowerby* 3 *and* 4—*Bolt.* 175—*Schæff.* 280.

Nearly globular when young, the opening at the top enlarging as it grows older, but the edge is always turned in. The root is a dark coloured hard knotty substance. The plant from 2 to 3 inches diameter, or more, and nearly as much in height; the substance smooth, moist, tender, brittle, dull ochrey yellow within, paler without, and the surface granulated. BOLTON.—Approaches nearly to the Peziza cochleata, but does not tear like that, and if accidentally torn does not curl in spirally, neither does it jerk out its seeds like that. BULLIARD.

Peziza cerea. Bull. and Sowerby, but the latter thinks that his pl. 3 is really distinct from pl. 4. On the ground on road sides, or on dunghills. Spring and Autumn.

P. Egg-shaped, woolly without, smooth and buff within. **lanugino'sa.**

Fl. dan. 779. 2.

This grows in large clusters, each plant when young and about the size of a small pea, egg-shaped, and entirely covered with pale brown wool on the outside; the aperture at the top at first small, smooth, conical. Advancing in growth it becomes more flat and open, so as to form a deep saucer-like cup. Substance very tough, and cuts like hard leather. Varies in size from that of a pin's head to ¼ and even half an inch diameter.

Peziza minuta. Dickson. On half rotten sticks, plantations, Edgbaston. Sept. Oct.

his′pida. P. (Huds.) Hemispherical, brown and rough with hairs without, smooth and sea-green within.

Bull. 204—*Hoffm. crypt.* ii. 7. 6—*Schæff.* 151—*Fl. dan.* 656. 1—*Mich.* 86. 4—*Gled.* 2, *Elvella, f.* 8—*Sowerby* 147.

Stemless, solitary or in clusters, leathery. *Pileus* concave, hemispherical, blue white within, smooth; brownish and hairy on the outside, uneven and hairy at the edge; about $\frac{1}{2}$ an inch over. Schæffer. The internal surface nearly white, and perfectly smooth; the external thickly set with short, rigid, brownish hairs. Frequent near Bungay. Mr. Woodward. Diameter sometimes as much as 2 inches: it is thin, brittle, semi-transparent, nearly flat, but the edge turned up and cooping in.

Moistish woods, hedges, and moist rotten wood, and gravel pits. Sept.—Oct.

vir′idis. P. (Bolt.) Concave, dark green, the edge turned in; pale green and woolly without.

Bolt. 109. 1—*Bull.* 376. 4.

The size of a large pin's head; dark green, with a thick black border. Bolton. The black border does not always exist.

On decayed oak leaves, and on rotten wood. In the park at Packington, on rotten sticks. Autumn.

cæru′lea. P. (Bolt.) Blue; fringed at the edge.

Bolt. 108. 2.

Adheres to wet rotten wood by a small central root; bright blue above, paler at the edge, and fringed with soft pale hairs; black and smooth on the outside; about $\frac{1}{4}$ of an inch over. Bolt.

Under firs at Burk's Hall, near Halifax. Oct.

viola′cea. P. Hollow, violet-coloured within, border and outside whitish, granulated.

Bull. 438. 4.

Very minute, fleshy, brittle, smooth, sitting; the inside rough with black prominent dots. Bull.

Found by Mr. Relhan on the bark of a beech tree, at White Wood, near Gamlingay. Sept. Oct.

cine′rea. P. Grey, reflected: border lobed, waved and curled.

Sowerby 64—*Batsch* 26. 137.

When young circular or oblong, and more closed; when fully grown more expanded and irregular, when past maturity irregularly cushion-like with a pit in an imperfect disk, the edge with small lobes; lobes short, broadish. *Edge* between the elevated lobes between depressed and indented, and therefore appearing curled. *Substance* horny or semi-transparent, ash-coloured, when moistish, the whole dark, but white when it begins to dry, and when dried membranaceous dirty white. Batsch.

Tremella cinerea. Bot. arr. *ed.* iii. Inside of decayed willows and stumps of trees. A. July—Aug.

P. (Lightf.) Turban-shaped, hollow, flat or convex with age, wrinkled on the outside; black above. polymor'pha.

Hedw. stirp. ii. 6. *E*—*Batsch* 50—*Bull.* 116. 460. 1—*Fl. dan.* 464—*Schæff.* 158—*Hall. enum.* 1. 8, *at p.* 21, *hist.* 48. 8, *at* iii. *p.* 116—*Hoffm. cryp.* 2. *b.* 2.

Sometimes solitary, more frequently in clusters. When mature, it emits a very subtle black powder in great quantities from its upper surface, though Hoffman says the seeds are emitted from the under surface, which is not analogous to any other similar plant. It afterwards becomes more and more dilated and at length plane or even convex with the edge rolled back, and in its latest stage variously wrinkled and deformed. On old trees which have been felled and are lying on the ground; frequent. Mr. Woodward.—Very well figured and described by the authors quoted above. Schæff. 153, also seems to be the plant in its unexpanded state. The substance of the plant is very like the Caoutchouc or elastic rubber, but it is rather adhesive. The top is black and shining like pitch. The figure an inverted cone, ½ an inch high, ¼ of an inch diameter at the bottom, ½ or 1 inch at the bottom, ½ or 1 inch at the top, fleshy, solid, brown on the outside. In its advanced state this plant is black above, brownish underneath, or entirely black, thin, of an undulating surface, and sometimes 2 or 3 inches in diameter, having a very different appearance to its young pear-shaped state.

Tremella turbinata. Huds. 563. On the trunks and branches of fallen oaks. [On the decayed branches of an oak; in Cornwall. Mr. Stackhouse.—On the stump of an oak, Holloway-head-lane, near Birmingham. On a fallen oak tree at the Larches.] Sept. April.

P. Concave, black. Huds. 637. a'tra.

On cow-dung. Huds. On rotten wood. Bolt. Aug.—May.

NIDULA'RIA. Fungus leather-like, bell-shaped, sitting: capsules large, flat, fixed by pedicles at the bottom of the bell.

OBS. Whilst the plant is young it contains a clear gelatinous fluid, and its orifice is closed with a thin membrane, which tearing as the growth advances, the fluid evaporates, and the seeds, or rather capsules, then become visible.

campanula'ta. NID. Bell-shaped; border expanding; smooth, shining and grey within: capsules smooth.

Peziza *(lentifera)* campanulata lentifera. LINN.

Bull. 488—*Bolt.* 102. 1—*Sowerby* 28—*Schæff.* 180—*Vaill.* 11. 6. *and* 7—*Mich.* 102, *cyathoides* 1—*Gled.* 4, *Pez. f.* 3 *and* 5—*Pluk.* 184. 9—*Pet.* 107. 9—*Battar.* 3. *I. K. L. M.*—*Fl. dan.* 469. 1—*Hoffm. cryp.* ii. 8. 2.

Stemless; inversely conical, from ½ to ¾ of an inch high, and nearly as much in diameter at the top. Brown on the outside; dark grey and smooth within; the border flanching out. Substance leathery. Capsules fixed by threads to the inside of the bell. Consists of a grey membranaceous bell-shaped cup, rather downy on the outside; its edge entire and reflected. Within it are contained several compressed circular bodies, filled with a gelatinous matter and connected with the cup, each by a fine thread inserted into its flat side. When these threads are fixed near the edge of the cup, the cases or capsules supported by them are found suspended on its outside. Mr. GOUGH.

Woods, garden walks and fields. [Frequent about Bungay. Mr. WOODWARD. Coplar Hill, Herefordshire, plentiful. Mr. STACKHOUSE. In the garden of the work-house at Erdington, near Birmingham.]

stria'ta. NID. Conical, woolly on the outside, scored within: capsules woolly underneath.

Sowerby 29—*Bull.* 40. *A.*—*Bolt.* 102. 2—*Schæff.* 178—*Fl. dan.* 780. 1—*Mich.* 102, *Cyathoides*, 2—*Gled.* 4. *Peziza f.* 1 *and* 2—*Vaill.* 11 4. *and* 5—*Hoffm. cryp.* ii. 8. 3.

Very woolly on the outside, beautifully striated within. Full ½ inch high, regularly conical, brown.

P. lentifera. β. Linn. Woods, fields, and rotten wood. [Earsham Wood near Bungay, Suffolk. Mr. WOODWARD.]

Sept.—May.

læ'vis. NID. Conical but distended; dirty yellow; smooth: capsules smooth.

Sowerby 30—*Bull.* 40. *B. C. C. and* 488. 2—*Schæff.* 179, 181—*Mich.* 102, *Cyathoides,* 3—*Gled.* 4 *Peziza f.* 4—*Fl. dan.* 105—*Ray* 1, 2, *b; and c, one of the seed-like substances*—*Hoffm. cryp. ii.* 8. 1.

Perfectly smooth both within and without; shaped like a crucible. All these species are at first closed by a cover, formed of the outer coat of the plant, which tears and disappears as the growth advances, shewing the young progeny which fall out, and fix themselves by their radicle, forming new plants. All the three species are common here. Mr. WOODWARD.

On rotten wood. Sept.—May.

NID. Turban-shaped; pale buff; with 5 teeth at the edge. denta'ta.

Smaller than a hemp seed. Colour pale buff: rather woolly; segments or teeth at the edge broad, spear-shaped, regular, Membrane tough, whitish. Seeds, or capsules reddish brown.

Several growing together on rotten twigs near the grate at Edgbaston Pool. Sept.

NID. Stem purplish, cup yellowish, bell-shaped, containing globular capsules. minu'ta.

Hoffm. 2. 2.

Minute, shining, shaped like a wine glass, about a line high. Capsules about the size of poppy seeds. These burst with a jerk, splitting into several segments and discharging a white woolly substance. HOFFMAN.

Cyathus minutus. Hoffm. *Trich. minuta.* Relhan, who detected it growing upon moss. Sept.

PHAL'LUS. With a stem: pileus smooth on the under, with a network of cells on the upper surface: seeds in the cells.

PH. Pileus egg-shaped; full of cells: stem naked, wrinkled. esculen'tus.

Bull. 218, *B. D.*—*Sowerby* 52—*Schæff.* 199. 298, 299, 300—*Bolt.* 91—*Fl. dan.* 53—*Sterb.* 10—*Mich.* 85. 1 *and* 2; 84. 1, 2, *and* 3—*Gled.* 2—*Phallus f.* 1, 2, 4, 5, 6, 7—*Gars.* 173—*Clus.* 264. 1—*Lob. ic.* ii. 274—*Dod.* 481. 1—*Ger. em.* 1583. 1—*J. B.* iii. 836. 2—*Park.* 1317. 1—*Tourn.* 329. *A*—*Battar.* 2. *F.*

Has an agreeable smell. *Stem* hollow, naked, white, 1 to 2 inches high, ½ to 1 inch diameter. *Pileus* buffy or brownish, entirely united to the stem, from the size of a pigeon's to that of a swan's egg; cells very large, angular like a honeycomb. Colour pale yellow, or buff, grows to a large size. Mr. WOODWARD.

(*Helvella esculenta.* SOWERBY. E.) Woods and hedges in loamy soil. May.

Var. 2. Small, black.

Bull. 218. *E. F.*

On sandy heaths, Norfolk. Mr. WOODWARD.

impudi'cus, PH. Pileus cellular above, smooth underneath, not united to the stem: stem perforating the pileus, and open at the end.

Bull. 182—*Curt.* 199—*Schæff.* 198. 197. 196—*Bolt.* 92—*Mich.* 83—*Gled.* 2. *Phallus f.* 3—*Fl. dan.* 175—*Ray cat. at p.* 122. *ed.* ii—*Battar.* 2. *A, B, C, D*—*Sterb.* 30. *B, C, at p.* 276—*Clus.* ii. 295—*Dod.* 483—*Lob. ic.* ii. 275—*Ger. em.* 1583. 2—*Park.* 1322. 13—*J. B.* iii. 845. 1—*Sterb.* 30. *B, F, G, at p.* 276—*Barr.* 1258—*J. B.* iii. 843. 3—*Sterb.* 30. *A, D*—*Pet. fil.* 17. 13. 14—*Clus.* ii. 286. 2—*J. B.* iii. 845. 2—*Sterb.* 30. *I, H, at p.* 276, *and Barr.* 1264, *exhibit no appearance of a pileus open at the end, but are probably the same.*

Though this plant is so intolerably fœtid that it is much oftener smelt than seen, yet in its egg state it has no offensive smell. The odour resides in the green matter which fills the cells of the pileus, and is very soon devoured by flies, particularly by the large blue flesh fly. In its egg-state it is about the size of a small pullet's egg, and remains many days before it bursts through its wrapper; but this being done, the stem pushes up with amazing rapidity, attaining the height of 4 or 5 inches in a few hours. This offensive green matter contains the seeds, which may be seen by the assistance of a good microscope. Such as have courage to smell this matter closely, will find it much less disagreeable than at a distance; for it then seems to have a slight pungency like that of volatile salts. Its odour very soon pervades a whole house. The wrapper is lined with a clear jelly like the white of an egg, but stiffer; within this is found the green matter, and within that the young plant. When it shoots up, the wrapper and the clear jelly remain at the root: the stem is hollow; within porous and spongy like pith.

[Very common in wet summers in hedge banks and thickets. In sandy situations frequent near Bungay. Mr. WOODWARD.]

July—Sept.

Ph. (Schæff.) Pileus wrinkled, red, covered with a greenish matter; conical, closed at the end: stem yellow, tapering at the bottom. cani'nus.

Curt. 235—*Schæff.* 330, *too highly coloured*—*Battar.* 40.*F.*

Egg the size of a nutmeg. *Stem* hollow, as thick as a swan's quill, near 3 inches high, pale orange, semi-transparent. *Pileus* conical, not larger than the stem, ½ inch high, closed at the apex: covered with a thin coat of green scentless slime, which being removed, it appears red and wrinkled. Its growth is rapid like that of the Ph. impudicus. Curtis.

Schæffer's figure not an exact resemblance of it as found in England. Mr. Woodward.

This is a rare plant. First found in woods and shady places near Shrewsbury. Ehret. *in Fl. Ang.* July---Sept.

CLAVA'RIA. Uniform: upright, club-shaped: seeds emitted from every part of its surface.

(1) Stem with a head.

Cl. (Batsch.) Stem hair-like: head club-like, terminating, longish, tapering at each end. Relhan n. 1102. gy'rans.

Bolt. 112. 1—*Batsch.* 164—*Willd.* 7. 18.

Stem 1-3d to 2-3ds of an inch long, very slender, pellucid, crooked at the bottom, twisting and untwisting as the air is moist or dry. *Head* oblong, near ¼ of an inch high, whitish. Batsch. The stem rises from a small bulb. Relhan.

On rotten straw and leaves, in woods and moist places. Sept. Oct.

Cl. Club awl-shaped, pale brown: root lentil-shaped. phacorhi'za.

Bolt. 111. 1—*Mich.* 87. 7.

Stem ½ inch long, smooth, slender, pellucid. *Head* 1 inch long, slender, spindle-shaped. Bolton.

Garden walks about Walthamstow. Oct.

Cl. Stem yellow, cylindrical; pileus egg-shaped, chesnut coloured, dotted. capita'ta.

Bolt. 130—(*Fl. dan.* 540, *and Bull.* 463, 3, *seem to be varieties of this.*)

Root black, spongy, surrounded by a thick wrapper which is continued with the stem. This is again inclosed in another, of a dry texture and brown green colour. *Stem* solid, smooth, furrowed, twisting, soft, pliable, splitting, 2 to 3 inches high, ¼ to ½ inch diameter. *Pileus* long, egg-shaped, ¾ of an inch high, near 1½ inch diameter. Bolton.

Ramsden Wood, about Highfield near Halifax.

epiphyl'la. Cl. Club-shaped, very entire: head blunt, hollow, red: stem pale yellow.

Dicks. iii. 9. 10.

Plant about 2 or 3 inches high. Stem cylindrical: head oblong egg-shaped.

In bogs, and on half rotten dead leaves. Dickson.

Spa'thula. Cl. (Dicks.) Head compressed, dilated: stem wrinkled.

Sowerby 35---*Bolt.* 97---*Fl. dan.* 658---*Schmid.* 50.

Stem white. Head yellow, egg-shaped, flatted. On being touched throwing up the seeds in form of a smoke, which rise with an elastic force and glitter in the sunshine like particles of silver. Bolt. 97. On touching them when in full perfection a smoke arises from the edges, thrown out with considerable force, and continues to rise some time, a circumstance common to all the Pezizas and Helvellas, and shewing this plant to have more affinity with them, particularly to the first than to the Clavarias. Bolton's figure represents the head more inflated than I have ever seen it. Mr. Woodward.

[Woods near Norwich, Sept. Mr. Crowe. In a pine grove at Kirby, near Beccles, constantly appearing every year. Mr. Woodward. In a fir wood at Johnston House near Lawrence Kirk. Mr. Brown.] Aug.---Oct.

milita'ris. Cl. Club-shaped, very entire: head scaly or granulated.

Var. 1. Head scaly.

Sowerby 60---*Schæff.* 290.

About 4 inches high and near 2 in diameter at the upper and thicker part. Solid; orange brown.

In shady woods. Oct.

Var. 2. Head granulated; orange brown, or red brown.

Schmidel, 5, 2 *and* 3—*Bolt.* 128—*Vaill.* 7. 4---*Fl. dan.* 657.1.

Var. 3. Head granulated; yellow.

Bull. 496. 1—*Buxb.* iv. 66. 2.

Stem slender, tapering upwards, about an inch high, and then gradually thickening to form the *Head*, which is nearly cylindrical, but thickest in the middle, blunt at the end, granulated on its surface, 1 or 1½ inch high, 2-10ths to 3-10ths of an inch diameter in the thickest part.

Moist woods and bogs. [Thorpe near Norwich, Dr. J. E. Smith.] Sept. Oct.

Cl. Unbranched: head oval, supported on a stem. parasit'ica.

Willd. berol. 7. 17.

This singular fungus is always fixed to a Lycoperdon. It is very like the Cl. ophioglossoides, but differs in being softer in its substance, and sooner decaying. The head is never compressed, as in that species, and is always coated with minute papillæ. When old it is hollow at the top. Willd. p. 405; who gives its specific character thus:

Cl. *parasitica*, clavata, nigra, simplicissima, stipite tereti, corpore oblongo tereti, obtuso papilloso---but I have preferred that of Mr. Woodward as being shorter, but yet sufficient. He ranks it as a Sphæria, with the following character.

Sph. *parasitica* simplex, stipitata, capitulo ovali.

I am indebted for the knowledge of this plant to Mr. Woodward, and also for the following observations:---Willdenow calls the Lycoperdon on which this grows, L. scabrum, and says it differs from the Tuber cibarium, which it certainly does, but I do not see that it differs in any respect from our T. cervinum. This plant is never branched, though frequently growing in clusters, in one instance as many as seven together. *Root* consisting of many long, wiry, brown fibres, with which it entwines and covers the surface of the Tuber, but never penetrates its substance. *Stem* slender, about 1 inch long. *Head* oval, about ½ inch high, covered with minute Sphæriæ. It differs from Cl. digitata, in size, in standing on the stem, and in being unbranched; and from Cl. cupressiformis in having a longer stem, an oval head, and the spherules much more minute; and from both in its peculiar habit, and the long fibres which form the root. Found on a heath near Norwich some years since, and sent me by Mr. Pitchford. Mr. Woodward.

(2) Stem without a head; mostly undivided. hercula'nea.

Cl. Undivided, solid, not granulated.

Var. 1. Club-shaped, depressed at the top, solid, surface uneven, dirty yellow or orange.

Bull. 244—*Schæff.* 169—*Schmidel* 4. 1—*Buxb. hal. row* 2. 1. *p.* 132—*Batsch.* 46—*Mich.* 87. 1. 2. 3—*Gled.* 1. *Clavaria f.* 4.

Cl. pistillaris. β Fl. suec. n. 1266. δ Huds.

This is the largest of the Genus; it is firm, undivided, greatly thickening upwards, solid, smooth, about 3 inches high, and 1 or 2 in diameter towards the top. The shape in the larger specimens is very much like that of a long pear.

Var. 2. Yellow or orange; solid, nearly cylindrical, tapering to a point.

Schæff. 171—*Schmidel* 4. 2—*Bolt.* 110. 1. 4. 5. 6. *from the left-hand possibly. Mich.* 87. 5. 6. 9—*Gled.* 1. *Clavaria, f.* 1. *and Mich.* 87. 11—*Gled.* 1. *Clavaria f.* 2.

Cl. pistillaris. β Huds.

Dirty buff, thick as a thick reed at the bottom, gradually swelling to the diameter of an inch at top; 5 inches high, surface wrinkled, pitted, and puffed out.

Amongst leaves and moss under trees, in Coplar Wood, Herefordshire. Mr. Stackhouse.

Var. 3. Small, sharp pointed, solid, yellow.

Bull. 463. 4.

Not more than ½ an inch high.

On a rotten stump at Edgbaston. Sept.

Var. 4. Whitish, solid, nearly cylindrical, tapering to a point.

Schmidel 5. 1—*Bolt.* 110, *the* 2d *and* 3d *from the left-hand—Fl. dan.* 837. 1. *and* 775. 2—*Scheuch. it.* i. 3. 3—*Mich.* 87. 12—*Gled.* 1. *Clavar. f.* 5.

Clav. vermiculata. Lightfoot.

Woods and heaths in dry soil. Oct.

Var. 5. Dull yellow, solid, either entire and blunt, or cloven and tapering at the end.

Bull. 264.

Yellow, brittle, smooth, when young undivided, flatted, grooved, becoming forked with age; terminating in a taper point. Bull.

Clav. bifurca. Bull. *Cl. vermicularis.* Lightf. Grows on the ground.

Var. 6. Yellow, smooth, cylindrical; when old forked at the end.

Vaill. 8. 4.

On rotten wood, amongst moss, in Edgbaston plantations. Aug.

The plants of this and the following species were united by Linnæus and Hudson, under the name of Cl. pistillaris, but Haller, and after him Lightfoot, very properly divided them; for want, however, of attending to the circumstance of the individuals being solid, or hollow, a circumstance which seems invariable, some confusion yet remained. We have now arranged them, guided by their structure, and as they naturally fall under two species, the third species of Haller and Lightfoot, called *vermicularis*, and its varieties, associates with one or other of these two. In this disposition of these subjects I am happy to have the concurrence of Mr. Woodward, whose accuracy and industry have added so greatly to the value of this work, and who had, without any previous knowledge of my intention, arranged the plants in question nearly as they now stand.

CL. Nearly cylindrical, generally undivided, hollow, brittle, smooth. pistilla'ris.

Var. 1. Hollow, white; thickest upwards.

Schmidel 15—*Bull.* 463. 1. *A. L. M.*—*Vaill.* 75.

Var. 2. Hollow, orange or brownish yellow.

Bull. 463. 1. *B. N. O.*

These plants are very brittle, slender at the base, rounded at the end, sometimes, though rarely, cloven: 2 or 3 inches high, and as thick as a raven's quill.

Woods, heaths, and dry hedge banks. Sept. Nov.

Var. 3. Tapering to a point; crooked, hollow, white.

Mich. 87. 13.

Cl. pistillaris. γ Huds. *Cl. vermiculata.* Lightf. Woods and pastures. Autumn.

CL. Stemless; nearly of an equal thickness: pale orange; whole surface studded with tubercles. tubercula'ta.

Schæff. 289.

About 1¼ of an inch high and ¼ inch diameter; nearly of equal thickness but rather flatted, and sometimes slightly cloven at the top. Colour pale orange, but the whole surface studded with deeper orange coloured tubercles which are broadest at the base, pointed and transparent at the apex; the interstices filled with a whitish cobweb-like substance.

The figure of Schæffer represents the tubercles very imperfectly, but they are mentioned in the description. Bull. 496. 1; gives a good idea of the tubercles, but that has a stem supporting a head, and therefore belongs to the preceding sub-division.

The circumstance of the tubercles appearing on every part of the plant is sufficient to distinguish this species from all others allied to it.

It is a rare plant, and was found only once in the rookery at Edgbaston, growing on the ground. Aug.

elveloi′-des. Cl. (Dicks.) Growing in tufts: stems very simple, very thick, united at the base, inversely pyramidal, scored. Jacq. misc. ii. 99.

Schæff. 164---*Jacq. misc.* ii. 12. 3.

When young fleshy: when fully grown woody, branched, compressed, somewhat funnel-shaped, lopped, the edge plaited, curled, brown with a tinge of purple without, whitish or yellowish within. Dickson 21. Inversely conical, about 2 inches high and 1 inch diameter. Schæffer.

Woods on the ground about the trunks of trees. Aug. Sept.

ophioglossoi′des. Cl. Wholly black: club-shaped, very entire, compressed, blunt.

Sowerby 83—*Schmid.* 25---*Bolt.* 111. 2---*Bull.* 372---*Fl. dan.* 1076. 2—*Schæff.* 327—*Vaill.* 7. 3—*Batsch.* 47—*Mich.* 874—*Pluk.* 47. 3.

About 2 inches high, and near half an inch over in the broadest part; black, smooth, spatula-shaped upwards, white within, and hollow when old. Bolton. Bulliard. I never could perceive any appearance of spherules on this plant. Mr. Woodward. Sometimes cloven at the top. Feels like very fine cloth.

Moist heaths and woods. Ancott bog, near Salop. Mr. Aikin. Sept. Oct.

fimbria′ta. Cl. Undivided, hollow, closed and pointed, or open and fringed at the end.

Greenish at the bottom; white above; hollow, tapering, close and ending in a single or double point; or open at the end and surrounded with a dark coloured glandular fringe. The whole covered with a greyish powder. About the thickness of a pin and near half an inch high.

Edgbaston, amongst moss. 27th Oct. 1790.

cor′nea. Cl. Red orange: simple or cloven, nearly cylindrical, blunt, gelatinous, solid.

Batsch 28. 161—*Bull.* 463. 4---*Sowerby* 40.

Hardly ¼ of an inch high; often sticking together from its glutinous texture, though horny and brittle when dry. Batsch.

Clav. aculeiformis, Bull. and Sibthorpe. Found by Mr. Relhan on decayed rails. Sept.

Dr. Sibthorpe, who found it upon decayed timber, in timber-yards at Oxford. Feb.

(3) Stem branched.

el′egans. Cl. White: somewhat branched, upright:

Bolt. 115---*Bull.* 496. 3. *L. M. P.*

Club-shaped or branched, 4 or 5 inches high, wrinkled, furrowed, thick as a quill. Bolton. Mr. Bulliard considers this as a variety of the coralloides, but I think Mr. Bolton is right in keeping it distinct. It connects the unbranched with the branched species.

Under firs about Fixby Hall, near Halifax. Sept.

Cl. (Dicks.) White, mealy, branched: branches short, lopped, finely scolloped. farino'sa.

Holm. in nov. act. dan. 1. *p.* 299. *f.* 6: *on the authority of Mr. Dickson.* ii. 25.

Solitary. *Stem* upright, somewhat angular, somewhat compressed, branched. *Branches* unequal, short, thicker towards the ends, bluntly lopped. Whole *plant* covered with a white meal, which being rubbed off it appears yellow. Dickson.

Woods on the chrysalises of insects.

Cl. (Bull.) Branched: flat, thin, membranaceous, jagged and fringed above. lacinia'ta.

Bull. 415. 1—*Jacq. misc.* 14. 1—*Schæff.* 291.—*Sowerby* 158.

Growing on the ground. From 1 to 2 inches high, branching, irregular in shape. *Stems* uniting at the bottom, purplish brown, covered with fine mealy white, which easily rubs off. *Branches* often like an expanded hand, whitish or yellowish brown, the ends jagged, set with several pointed projections and tipped with reddish brown. Substance solid, tough.

Edgbaston Plantations. 21st Aug. 1791.

Clav. Fan-shaped, lobed, rusty red: stem short, cylindrical, hairy. anthoceph'ala.

Bull. 452. 1.—*Sowerby* 156.

Stem near ½ inch high: cylindrical, thick as a goose quill; expanding upwards into battledore-shaped segments scolloped at the ends. Plant leather-like, the colour of rusty iron, but paler upwards.

Bulliard's figures are nearly 2 inches high, and almost as much in breadth at the top, but Dr. Sibthorpe has cited Ray *Syn.* p. 16. n. 13. as a synonym, but Richardson describes that plant as resembling a cauliflower, weighing 2 or 3 pounds, of a yellowish green colour, and refers to Battar, 18. A. which well accords with his description.

Sibthorpe found his plant in Shotover Plantations, in Oct.

Cl. Branches crowded, very much divided and sub-divided, unequal. coralloi'des.

Var. 1. Yellow.

Bull. 222—*ib.* 496. 3. *O. Q. and* 358. *B. D. E. and* 496. *N*—*Schæff.* 174. 175. 285. 287—*J. B.* iii. 837—*Barr.* 1260—*Vaill.* 8. 4—*Tourn.* 332. *B*—*Clus.* ii. 274. 2—*Ger. em.* 1579. 2—*Park.* 1318. 26, *and Barr.* 1266—*Sterb.* 11. *at p.* 96.

Heaths, groves, and pastures. Aug.—Oct.
Var. 2. Whitish, or quite white, solid.

Batsch 48—*Bolt.* 113. *d.*—*Schæff.* 170. 176. 286. 287—*Bull.* 358. *c.*

Grows on the ground.
Var. 3. Reddish.

Schæff. 177—*Barr.* 1262. 1259—*Mich.* 88. 3—*Gled.* 1—*Clavaria. f.* 7.

Var. 4. Purple.

Bull. 496. *G.*—*Bolt.* 113. *b.*—*Schæff.* 172—*Barr.* 1261—*Pet. fil.* 16. 15.

Root very large, solid; branches numerous; tops forked, beautifully tinged with purple.
Amongst leaves under trees. Mr. STACKHOUSE.
Var. 5. Pale olive brown.

Bolt. 113. *a.*

Pale brown, growing in large tufts. General appearance like a cauliflower. Substance tender. Stems and branches solid; half an inch or more in height. Roots closely compacted together forming a more resisting substance than the stems.
Under the oak tree which hangs over the road down to the horse stew, Edgbaston. 4th Sept. 1791.
Var. 6. Grey.

Bull. 354.

This species varies almost without end, but may always be distinguished from the pistillaris, by growing from one base and being extremely branched. Mr. WOODWARD. All the above plants are very brittle and tender, and it is said may be admitted to our tables; the white ones or grey ones I know may be eaten with safety.

fastigia'ta. Cl. Yellow: branches crowded, very much divided and sub-divided, of equal height: (blunt.)

Bolt. 112. 2; *and* 113. 2. *b. c.*—*R. Syn.* 24. 5, *at p.* 478—*Buxb.* iv. 66. 1—*Schæff.* 174. 170. 172 *and* 291—*Bull.* 358. *D. E.*

Whether this be a variety of the preceding, or a distinct species, seems doubtful. The principal difference is that in the Clavaria coralloides the whole plant issues out of one thick and solid stem, which afterwards divides and sub-divides into very numerous branches; but in this species they seem very slightly, if at all, connected at the base, where the distinct stems are much attenuated, and are either simple or slightly branched, and lopped at the top. From these circumstances it may be thought to approach the Clavaria pistillaris, but I should consider it as distinct from both. Vaill. 8. 4. probably belongs to this as Bolton supposes. Mr. WOODWARD. Branches thickest upwards, lopped and flat at the ends. Yellow, white, or purple, full 1 to 3 inches high, and thick as a crow or a raven quill. BOLT. LIGHTF. SCHÆFF. It is evident from the inspection of the various figures, that some have been drawn, as Bolt. 112. 2. from plants in a young state. When something older, pointed teeth shoot out from the ends, and when older still these become larger and sometimes branched, so that the latter part of the Linnæan character, included in a parenthesis, would be better omitted. Perhaps M. Bulliard is right in considering the fastigiata as only a flat-topped variety of the coralloides.

Woods and pastures. Aug.—Oct.

CL. Branches flattish, grooved, the ends fringed; grey, changing to black brown. coria'cea.

Bull. 452. 2.

Substance soft, but elastic; grows bundled together like coralline; about 2 inches high. Differs from the Cl. coralloides and Cl. fastigiata in the longitudinal grooves, but is perhaps not specifically distinct.

Found by Dr. Sibthorpe in Shotover Plantations, Oxfordshire. Jan.

CL. Pale yellow, repeatedly branched, taper-pointed, unequal. muscoi'des.

Schæff. 173—*Bolt.* 114—*Bull.* 358, *A. B.*—*Sowerby* 157—*R. Syn.* 24. 7, *at p.* 479—*Fl. dan.* 836. 2—*Pet. gaz.* 93. 4, 5—*Gesn. ap. Cord. ic. æn.* 17. 153.

This differs from both the preceding in having the extremities of the branches sharply pointed, but it agrees with the fastigiata in being nearly distinct at the base, and with the coralloides in being much branched. Mr. WOODWARD. Yellow or brown yellow, from 2 to 5 inches high, branches like some of the shrubby Lichens, the branches always affecting forked divisions, and terminating in pointed forks. Am not quite certain of my reference to Bulliard, but still less certain that Mr. Bolton has rightly referred to Bull. 264.

Heaths and dry woods. [Pendartis, Cornwall. Mr. STACKHOUSE.] Sept. Oct.

digita'ta. CL. Black, thick, solid, conical, rough.

Sowerby 69—*Fl. dan.* 900—*Hoffm. crypt.* i. 4. 2—*Bull.* 220—*Bolt.* 129. *h.*—*Schaff.* 328—*Mich.* 54. *ord.* 2, 4—*Wieg. obs.* 3. 6.

Substance like cork, tending to a cylindrical figure; black, white within, 1 to 2 inches high, ¼ to ¾ inch diameter, sometimes rather branched, white at the top when young. Seeds lodged in little cells on the surface, mixed with a glary fluid. These cells are not very visible externally until the hairs fall off. BULLIARD. This is always branched; several stems arising from the same thick base, which supplies the place of a root. If any of Bolton's figures are intended to represent this, they are so ill executed as not to be safely quoted; Mr. WOODWARD; who considers it as a Sphæria, and dissatisfied, very justly, with the insufficiency of the Linnæan character, adopted by Mr. Hudson, proposes the following. SPH. *digitata,* ramosa, ramis subsessilibus oblongis, apicibus obtusis.

On rotten wood. Aug.—Nov.

Hypox'-ylon. CL. Very black, rough, compressed, powdery, branched, horned, or hand-shaped.

Sowerby 55—*Bolt.* 129. *b. e. i. e. f.*—*Bull.* 180—*Wieg. obs. t.* 3. *f.* 5—*Mich.* 55. *ord.* 1. 1—*Walc. n.* 7—*Pet. gaz.* 67. 12—*Batsch* 160.

From 1 to 3 inches high, and ¼ to ½ across; very woolly when young, and very black; the tops tender and gelatinous whilst young, white, mealy; flesh white, fibrous, rather woody. The white tops turn brown and shrivel towards the end of winter, when the seeds ripen. Seeds in cells on the surface below the white part.

On rotten wood. On the stumps of alders which have been cut down 6 or 7 years, plentiful, and in almost every variety of shape and size. Pool tail in Edgbaston Park. It may be found all the year, but not plentiful in the summer. The tubercles first appear below the white extremities, on a less white part, and they are black.

Var. 2. Flat, thin, inosculating; but little hairy.

Fl. dan. 713—*Mich.* 66. 3.

No part broader than a packthread; but variously run into one another. Mr. WOODWARD.

Between two thick oak planks which covered a well. WOODWARD. In a similar situation over a well in a cellar at Mr.

Warltire's at Wolverhampton. I have seen it 2 or 3 feet long, and between the bark and the wood of a large elm in Edgbaston Park, which had been shivered by lightning, I found it in the matted state mentioned by Mr. Woodward.

Var. β. Hudson, is the Boletus rangiferinus.

The Clavaria Hypoxylon, and digitata, run so much into one another, that I do not see how it is possible to establish them as distinct species, but have at present kept them separate in compliance with the opinions of Linnæus, Haller, Hudson, Lightfoot, Bulliard, &c.

The Rev. Mr. Dickenson lately mentioned to me some curious observations made by Dr. Waller upon these species, which seem decisive. The Dr. says that the plants described by Linnæus under the names of Clavaria hypoxylon, Clav. digitata, and Clav. ophioglossoides are but one and the same plant, which he proposes to call Clavaria villosa. The Clav. hypoxylon as described by Linnæus is the most common appearance of the MALE plant. The Clav. digitata is the most common appearance of the FEMALE plant; and the Clav. ophioglossoides is only a variety of the female.

With regard to the Clav. digitata, so called by Linn. and placed by him amongst the branched Clavarias, Dr. Waller observes that Linnæus has been mistaken in his application of the word *digitatus*, as by Tournefort, Vaillant and others, the word has been applied to two female varieties of the plant, not to signify that they were branched, but because their single head in figure and size bore a resemblance to a finger.

The Clav. digitata, or female plant, begins to spring at the same time, (about the end of September) and in the same place, (in shady woods) with the male: but grows only to about half its height. Though they grow always in clusters upon the stumps of the same tree, yet they never both proceed from the same root. After the male plant has shed its pollen in November, it continues to decay till spring, when it withers quite away; whereas the female continues to grow vigorously till about the middle of April, when the head, the seeds in it being ripe, bursts in several places and falls off.

These facts sufficiently shew the distinction between the sexes.

Cl. But little branched; head conical, supported on a cupressi-
stem. for'mis.

Mich. 55. 2—*Bolt.* 129. g.

This plant seems to me to differ very essentially from the Cl. digitata. It is generally simple, or only once divided. *Stem* about ½ an inch high, supporting a head about the same length, which is always conical, resembling a cypress tree in miniature. Mr. WOODWARD. I had arranged this as a variety of the Cl. hypoxylon, but now place it as a distinct species on Mr. Woodward's authority, who reckons it, as he does the others of this tribe, as belonging to the genus Sphæria, and favoured me with the following specific character, from which the English character, given above, is taken.

SPH. *cupressiformis* sub-simplex, stipitata, capitulo conico. On decayed wood. Mr. WOODWARD.

TU'BER. Stemless; fleshy, solid, not becoming powdery, not opening at the top.

ciba'rium. TUB. (BULL.) Globular, solid, warty; without a root.

Bull. 356—*Mich.* 102, *Tuber*—*Gled.* 5.10, *and* 6.7—*Tourn.* 333—*Matth.* 544—*Sterb.* 32, *the uppermost A.*—*Lonic.* ii. 15—*J. B.* iii. 849—*Dod.* 486. 2—*Lob. ic.* ii. *Tubera; Ger. em.* 1583. 8—*Park.* 1319. 30—*Sterb.* 32, *the middlemost A.*—*Ger.* 1385. 3.

Globular, of the size of a large plumb, whitish, rough with elevated dots, in the centre containing a brown powder like that of *Lycoperdon Bovista*, but in small quantity, opening with a rent. LINN. *succ. n.* 1281. It is found under the surface of the earth, at the depth of 4 or 5 inches. It has no proper root. Its colour dark, approaching to blackness. White within when young, but when old black with whitish veins. BULLIARD.

T. ruffles. T. rubs. Under ground in highwoods and pastures. On the Downs of Wiltshire, Hampshire, and Kent.*

Sept.—May.

al'bum. TUB. (BULL.) Tawny white, without a root, but rooted by its base: variously shaped, roundish, convex, hunched, somewhat wrinkled, solid, whitish. DICKSON ii. 26.

Bull. 404.

Two to 3 inches long, and about 2-3ds as much in width. A section of its inside shews very like a piece of Rhubarb. BULL. Half of it lying beneath the surface of the ground. Somewhat yellowish when dry. Nearly allied to *L. Tuber.* DICKSON.

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* This is one of the esculent Fungi, and one of the best of them. Dogs are taught to hunt it, and when they scent it they bark a little and begin to scratch up the earth. Pigs likewise in Italy root it up, and then an attendant takes it from them.

Lycop. gibbosum. Dickson. Woods.

Var. 2. Uniform, tanned leather colour within.

About a fourth part buried; near 2 inches diameter; surface knobby and pitted; hairy in the pits; substance uniform, like cork, colour not variegated. The whole mass perforated by stems of grass, so that it must have been above ground in a soft state. I suspect it will prove to be a distinct species.
Under a Spanish chesnut-tree, in Edgbaston Park. Aug.

Tub. Globular, rather solid, rent; powdery in the centre; without a root. cervi′num.

Mich. 99. 4—*Gled.* 5. *f.* 11—*Sterb.* 32, *the uppermost B.*—*Gars.* 115. *A.*—*Lob. ic.* ii. 276, *Tubera cervina*—*J. B.* iii. 851—*Park.* 1319, *the 2 figures on the right hand*—*Sterb.* 32, *the lowermost B.*

(*L. cervinum* Bolt. 116, is L. spadiceum.)

Tawny on the outside and granulated; the outer coat hard. Whitish or purplish within. About 1 ½ inch diameter. Micheli.
Woods and hedges. Caen Wood near Hampstead. *Ray Syn.* 28. In Devonshire. Huds. [In a wood near Woolhope, Herefordshire. It grew just on the surface under a tree, and was split in wide fissures so as to resemble a cluster of chesnuts. Mr. Stackhouse.]

Tub. Globular but compressed, brown, reticulated, very firm; blue black within. sol′idum.

Vaill. 16. 5, 6—*Schæff.* 188. *f.* vii.

Globular but compressed. Diameter 1 to 2 inches. Inner coat tough and woody; outer skin thin, brown, cracked, but not papillose. Inside firm, solid, blue black, even from its youngest state. It seems composed of black grains, imbedded in a grey cottony substance, so that when broken it appears more grey than when cut, for then the inside of the granules appear black from being cut through. Stemless. Root short.
Edgbaston, under an oak tree by the Pool. 13th Aug. 1791.

Tub. Roundish, compressed; radical fibres from the surface, collecting so as to form a root. radica′tum.

Bolt. 116—*Mich.* 99. 3. *and D.*—*Sterb.* 32. *the 2 middlemost. B. B.*

From 1 to 2 inches or more in diameter. *Root* none but radical fibres are connected with different parts of its surface. When it rises out of the ground, the fibres which are undermost unite themselves and form a kind of root. It is at first brown, and rough, and milk white within. When it is risen above the surface of the ground it assume various colours, as yellow, or green, or reddish brown. The inside now changes to purple, variegated with black veins, and at length becomes wholly black. The rind is very strong, and never breaks open like that of the Lycoperdons. Bolton.

Lycop. cervinum. Bolt. *Lycop. spadiceum.* Dicks.? The L. aurantiacum of Bulliard cannot be the same with this, for it is a real Lycoperdon, and opens at the top. Lyc. spadiceum Schæff. 188 has been referred to this, but this solid stem and the habit do not agree.

On heaths, rare. April—Sept.

LYCOPER'DON. Roundish, fleshy, firm: becoming powdery and opening at the top: seeds fixed to filaments connected with the inner coat of the plant.

(1) Wrapper permanent.

colifor'me. Lyc. Wrapper many-cleft, expanding: head spherical, depressed: fruitsstalks and mouths numerous.

Dicks. 3. 4.

Wrapper when ripe splitting into several segments which lie flat on the ground, expanded in form of a star. *Head* pierced with several *mouths* from which the dust escapes. Doody in R. Syn. 28. *Wrapper* leathery, at first inclosing the head, when ripe splitting elastically into several segments; *segments* unequal, towards the ends marked with spots, the relics of the mouths of the head. *Fruit-stalks* supporting the head, several, short, near together, compressed, almost woody. *Head* brownish, covered with a thin silvery pellicle, the upper surface pierced with holes, full of a brown dust. *Mouths* small, round, fringed, somewhat elevated. Dicks. This Lycoperdon springs from an egg which lies on a level with, or just below the surface of the ground. In this state it is nearly globular, but slightly compressed, of a dirty white, wrinkled, scaly; with a short thick root terminated by a few fibres. Cut open it shows a soft leathery coat, covering another which is thicker and much more tough, filled with a white curd-like substance of a disagreeable smell. As yet there was no appearance of a head. One found in August remained in this state to the end of November before it expanded; when in a single day it was entirely raised out of the ground and fully expanded. The root breaks off, and is left in the earth, and the inversion of the plant necessarily raises it to the surface; what was before the upper and outer part of the wrapper being now next the ground. This description of the method of opening applies to the L. stellatum and L. recolligens as well as to this species. The head in the larger specimens is considerably compressed, of a brownish colour, covered with a very thin pellicle of a beautiful silver grey, peculiar to this species. The apertures are very numerous, slightly elevated and fringed with fine hairs. The pedicles which do not appear till the thick brittle coat (which is common to this and the other stellated species) dries or peels off, are very numerous, woody, thread or strap shaped. In one specimen they filled up a circle of ½ an inch diameter, and this had at least 40 apertures. In the small specimens the head is nearly spherical, and sometimes the pedicles and apertures are not more than 3 or 4; but these are hardly to be considered as varieties. Notwithstanding there seems to be a sort of correspondence between the number of pedicles and of apertures, they have no direct communication, nor any corresponding cells, the head forming a single cavity as in the other species. The apertures are not accidental ruptures, but originally formed, for in an abortive plant, found in company with Mr. Stone, in which the dust never ripened, we observed a puckering of the skin in the same situation where the mouths usually appear. Mr. WOODWARD.

In the lane from Crayford to Bexley Common, Kent. DOODY *in Ray Syn.* 28.—Sandy banks near Mettingham, Suffolk; and Gillingham, and Earsham. Norfolk. Mr. STONE and Mr. WOODWARD. [Near Hanley Castle, Worcestershire. Mr. BALLARD.] August. Sept.

LYC. Wrapper many-cleft, expanding; segments unequal: head on a short stem, smooth: mouth tapering upwards, toothed. stella'tum.

Bolt. 179—*Gent. Mag. Feb.* 1792—*Bryant Lyc. f.* 12, 13, 14. 16, 17.—*Ray Syn. p.* 29. *t.* 1. *f.* 1—*Mich.* 100. 2. 5, 6 —*Schmid.* 46.

When fresh opened the head appears sitting, owing to the thickness of the interior spongy coat of the wrapper. After a few days, this cracks, as represented by Mich. t. 100. f. 5, and peels off, and then the stem appears. I apprehend it to be owing to this that some authors have described the head as sitting, and others as supported on a stem, and it is therefore very difficult to ascertain whether they speak of this plant or of the L. recolligens. Head nearly globular; the mouth surrounded with a fringe converging into a cone. The whole plant generally of a dirty white, but the head has sometimes a greyish tinge. WOODWARD. Mouth often smooth when first open, but in time splits into teeth. Mr. ROBSON. Head about 1 inch diameter, bluish brown. *Wrapper* brown within, but bright silvery white on the outside. When kept under a glass, in a moist state, it gets the cadaverous smell of the Phallus impudicus, but in a lesser degree.

Hedge banks, pastures. [Hedge bank in a field called Little Marsh Croft, by the side of the road from Blimhill to Brineton. Mr. Dickenson.—Hedge bank by the side of the great road from Coventry to Birmingham, near Stone Bridge. In Edgbaston Park.] Sept. Oct. April.

Var. 2. Head flatted: mouth long, taper; teeth longer.

Bryant Lyc. f. 19, *the head only, but well expressed.* Mr. Woodward.

This, which is found on dry banks, usually amongst Ivy, is different, from being smaller, and having the head flat at top, and the mouth extremely conical. It is almost black when dry. and the Rays usually turn up at the point, but do not rise so as to cover the head in the manner of L. recolligens. Mr. Woodward.

fornicatum. Lyc. (Huds.) Wrapper double; 4-cleft; arched: head smooth; mouth blunt, fringed: stem short.

Sowerby 198—*Schæff.* 183—*Phil. trans. abr.* x. 20. *p.* 107; *Blackst. at p.* 24, *outer coat too smooth*—*Batsch* 168—*Bryant Lyc.* 15 *and* 20—*Battar* 39. *f.* 4.

The *Rays* may be sometimes 3 or 5, but only accidentally. The double wrapper adhering by the points which is never seen in any of the varieties of the L. stellatum is a grand distinctive mark, for the outer wrapper remains sunk in the ground, not being reversed and thrown out as in the stellatum, &c. Mr. Woodward. Wrapper 1½ inch in diameter, rough and ash coloured on the outside, smooth and whitish within. Inner coat whitish within, reddish yellow without. Head oblate spheroidal brown, 6-8ths of an inch in diameter. Stem hardly ¼ of an inch in height. Dr. Watson in Phil. trans.

This plant in its expanded state, has a very singular and fanciful appearance. The outer coat or wrapper remains in the ground, whilst the inner separating from it is raised up and bears the head upon its most elevated part, whilst the points of its segments remain united with those of the outer wrapper, so that it is a globe supported upon 4 arched rays, the 4 points of the arches resting upon the 4 points of the outer wrapper which form an inverted arch. See Linn. Tr. vol. ii. for an excellent dissertation on the Stellated Lycoperdons by Thomas Jenkinson Woodward, Esq.

Meadows and pastures, at Buckebury, 10 miles from Reading; about Wickham, near Bromley, Kent; Blackst.—Near Doncaster, Tofield *in Fl. Ang.*—Near Norwich on the slopes of old banks in a loamy soil, mostly in an eastern, and next to that a western aspect, commonly at the root of a shrub or tree. Bryant.—On the Links, Newmarket Heath. Relh.—[Near Hanley Castle, Worcestershire. Mr. Ballard. About Birches Green near Birmingham. Mrs. Corrie.] Oct.—Jan.

Lyc. Wrapper many-cleft, expanding; segments equal: head globular, but flatted; stemless: mouth tapering upwards. Woodward, in Linn. tr. ii. 58. recol'ligens.

Sowerby 80—*Schmid.* 27 *and* 28, *f.* 20 *to* 31—*Bull.* 238 *and* 471. 1—*Mich.* 100. 3. 5—*Gled.* 6, *Lycoperdon f.* 2.—*Bryant. f.* 3, 4, 5, 6. 10.

The rays of the wrapper when fully expanded seldom exceed 1½ inch, though I have found them twice that size. They are nearly equal, and regularly spear-shaped. Outer coat of a bright silvery white; inner coat much thinner than in any other species, and does not crack and flake off, but soon dries, when it acquires a chesnut colour; smooth, rather shining. *Head* compressed, yellow white or dirty buff, perfectly stemless. Mouth conical, ciliated. Segments of the wrapper when dry entirely enclosing the head, when moist expanding and perfectly flat. It may be made to undergo these changes at pleasure by putting it in a saucer with a very little water, when in an hour or two it will expand and again contract if suffered to dry. This property it retains for years if kept in a dry place. Plants of the Lycoperdon stellatum often appear stemless, but in a few days they invariably shew the footstalk. The diameter of the expanded rays varies from 1 to 4 inches, and the size of the head from that of a pea to an inch in diameter. Woodward.

Earsham, Norfolk, and Mettingham near Bungay, Suffolk. Mr. Woodward.

Lyc. Wrapper with many ragged clefts: head cylindrical, stemless. cylin'dricum.

Wrapper dark brown, torn into 7 or 8 unequal ragged segments. Head paler brown, smooth, cylindrical, opening at the top; mouth plaited, puckered. Three inches high, and 1½ inch diameter. Internal structure like a honeycomb, but less regular.

There is no figure of this species, and I have not seen it, but have described it from a drawing made by Mr. Gregory Watt, from plants which he found in a plantation of firs in the neighbourhood of Glasgow.

Lyc, Wrapper many-cleft, expanding: head globular; stem long, slender, cylindrical. florifor'me.

Bull. 371.

Plant leathery; pale straw-colour. The capsule splits open into 5 or 6 segments, which then resemble the petals of a flower. A woolly matter replete with powder now comes into view, and under this a pear-shaped receptacle. BULL.

Sphærocarpus floriformis. Bull. This curious species was first discovered in England by Mr. Relhan, growing upon Hypnum prælongum and rutabulum in Madingley plantations. Oct.

phalloi'des. LYC. Head bell-shaped, powdery: stem ragged, woolly.

Phil. trans. lxxiv. 16. *at p.* 423.

Roots few, thin, whitish. *Wrapper* egg-shaped, double, with mucilage between the coats. *Stem* issuing from the inner coat of the wrapper, rather woody, hollow, brownish, its surface ragged. *Pileus* bell-shaped, smooth, covered on its upper surface with a thick layer of powdery matter, and bearing on its apex a cap formed by a part of the lacerated wrapper. *Powder* spherical, semi-pellucid, yellow brown. The egg is about the size of a small hen's egg, and lies buried in sandy banks at the depth of 6 or 8 inches. The stem is from 7 to 12 inches long, though not more than 2 or 3 inches appear above the surface. The pileus is an inch or more from the edge to the apex, and nearly as much in diameter at its base. Phil. Trans. v. 74, p. 423. This very singular plant was first discovered by Mr. Humphreys, and afterwards its progress in its various states was carefully watched by Mr. Stone and Mr. Woodward, the latter of whom sent an accurate description of it with a drawing to the Royal Society. In the Phil. Trans. it is referred to the genus Lycoperdon, and Mr. Dickson has introduced it in his Fasc. Plant. Cryptog. p. 24, under the name of Lycop. Phalloides. Its habit, and the mucilaginous matter between the coats of the wrapper had induced me to rank it as a Phallus; but in truth it is neither a Phallus nor a Lycoperdon, but a sort of connecting link between the two, and must probably form a new Genus. Its wrapper is said to be three-fold, and continues rooted in the ground, but the stem, as it rises up, carries up almost the whole of the internal powdery wrapper attached to its top, as also some portions of the two outer ones torn away from their bases in the same manner. *Smith's spicileg.* p. 12.

Sand banks near Norwich, Norfolk, and Bungay, Suffolk. Mr. HUMPHREYS, and Mr. WOODWARD *in Dicks.*—[Earsham and Kirby, Norfolk. Mr. WOODWARD.] Aug.

Carpo'bolus. LYC. Wrapper many-cleft: fruit globular, composed of seeds united together.

Sowerby 22—*Abbot. Fl. Bed. p.* 336—*Fl. dan.* 895—*Mich.* 101. 1. 2.

Whitish, of the size of a pin's head, opening into an expanding border with 5, 6, or 7 clefts. From the disc an oval vesicle as tall as the disc, leaps up, exploding its contents with an elastic spring. FORSKAHL *in Linn.* This peculiar property of the Carpobolus, whence it has its name, seems to remove it from the Lycoperdons, though the leathery sac containing the seeds brings them near together. If this be made a distinct genus, the Mucor urceolatus will associate with it. Mr. WOODWARD.

On rotten saw dust. BROWN *in Dill. musc.* 55. On rotten wood in woods and hedges. HUDS. At Packington.

Aug.—Oct.

LYC. Wrapper entire, rusty red, protruding a pellucid colourless border. hydro'phorum.

Sowerby 23—*Bull.* 410. 2.

The size of a small pin's head, in clusters, sitting, somewhat woolly, rusty red; opening at the top, but not splitting into rays, and protruding a diaphanous globule.

Peziza hydrophora. Bull. On rotten wood.

(2) With a STEM.

LYC. Plant brown white: stem solid, cylindrical: head globular, but rather hollowed underneath. equi'num.

Willden 7. 20—*Dill.* 14. 5—*Ray. Syn.* 1. 3—*Bolt.* 178, *but much larger than the other figures, or than any specimens I have seen.*

Generally about ¼ of an inch high. Head from the size of a hempseed to that of a large pin; globular but sometimes hollowed a little underneath, so as to resemble the pileus of a minute Agaric with the edge turned in. The edge is filled with a reddish brown mass of seeds and woolly fibres, but I could never perceive a tendency to any particular mode of opening, nor any appearance of it being cut round, as mentioned by Willdenow. Dill. 14. 4, is, I suspect, a different plant.

Lichen byssoides. Linn. Huds. and Bot. arr. *ed.* ii. *Lycoperdon gossypinum.* Bolt. In Gmelin's edit. of *Syst. nat.* it is given under the name of *Lich. byssoides*, and again as *Lycoperdon equinum.* J. Wynne Griffith, Esq. who furnished specimens to Mr. Relhan, lately discovered it again on the decayed hoof of a horse, several of which he sent to me, along with the following description.—" Substance leathery. Root spreading horizontally under the laminæ of the hoof or horn on which it grows. *Stem* solid, very stiff, slightly compressed, white, but sometimes buff-coloured near the root; from ¼ to 1-3rd of an inch high. *Head* globular, compressed; surface cracked and mealy, bursting indiscriminately, and filled with a light brown powder. I never was satisfied that this plant was a Lichen, but I have now specimens which incontestibly prove it to be a Lycoperdon."

Grows on the horns of cattle and sheep, but more frequently on the hoofs of horses which have been long exposed to, and softened by the weather. Mr. GRIFFITH.

peduncula'tum. LYC. Stem hollow, long; head globular: smooth: mouth cylindrical, very entire.

Bull. 294—*Batsch* 167—*Tourn.* 331. *E. F.*

Stem hollow, cylindrical, stiff, near an inch high, and thick as a swallow's quill. *Head* globular, ¼ to ½ inch diameter, rather compressed, aperture small, oblong, surrounded with a tubular ring. Colour pale, ochrey. BATSCH.

Meadows and pastures. [Common about London. Mr. WOODWARD.] Aug.—Oct.

verruco'sum. LYC. Stem very short: root large: head globular, but compressed; olive brown, pitted.

Bull. 24.

Head yellow, pitted, like the remains of the small pox, the pits very minute and varying in depth; diameter 1 to 1½ inch. *Flesh* white, changing to pinky when exposed to the air, woolly. *Seeds* pinky grey. *Stem* solid, very short, white, thickening into a large woody root.

Edgbaston by the little pool dam. 24th Aug. 1792.

parasit'icum. LYC. On a stem: head nearly globular, tawny, brittle: seeds black. Mr. WOOD.

This elegant little plant was sent to me by the Rev. Mr. Wood, of Leeds, in the year 1784. It grows in clusters upon other plants; one cluster of those I received was attached to a stem of grass, and another to a piece of a Hypnum. The stem is cylindrical, yellow white, about 1-20th of an inch in length. The head globular, dull, yellow or tawny, thin, brittle, opening at the top and discharging a black powder. Its size that of a small pin's head.

In the neighbourhood of Leeds, Yorkshire. Mr. WOOD. Nov. Dec.

Lyc. Sphæroidal; wrinkled at the base, furnished with a short stem; segments at the opening, bluntly notched. aurantia'cum.

Bull. 270—*Vaill.* 16. 9. 10—*Mich.* 99. 2.

The stem or neck much plaited where it joins the root. The substance bluish purple, changing to tawny when the seeds are ripe. Its shape resembles that of a turnip, its colour varies from pale greenish yellow, to orange or dull dirty yellow; its diameter from 2 to 5 inches. Bulliard. Outer coat cracking, darker coloured than the inner coat. It is harder than any other species, and opens at the side. Mr. Stackhouse.

I am obliged to Mr. Relhan for the knowledge of this being an English species. He tells me he found it on a common near Derby. Mr. Stackhouse has since found it under trees, at Pendarvis, Cornwall. Jan.

(3) Nearly Stemless; large.

Lyc. (Bull.) Roundish, turban-shaped, or thinner downwards: flesh white: seeds dark-coloured; skin thin, flaccid. pro'teus.

Lycoperdon *(Bovista)* subrotundum: lacerato-dehiscens. Linn. and its varieties.

Obs. Growing on the ground, when young white, or pinky grey; tawny grey when full grown, and brown when old. Bull. Surrounded with three coats; the outer coat tender, easily abraded, the middle coat tough, leathery, smooth; the inner coat connected with the substance. Bolt. The arrangement of this species and its numerous varieties is taken from M. Bulliard, whose figures and descriptions are far superior to those of any of his predecessors.

Var. 1. *great.* Globular, sitting, very large.*

Bull. 447—*Schæff.* 191—*Clus.* ii. 288—*Dod.* 484—*Park.* 1323. 32—*Sterb.* 28. *C. E.*

Sometimes as much as 12 or 15 inches in diameter.

L. Bovista. δ Huds. *L. Bovista.* 1. Lightf. *Bunt. Frog-cheese. Puckefist.* Pastures, and road sides amongst grass. Aug.

Var. 2. *onion-shaped.* Globular but flatted.

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* The fumes of this when burnt have a narcotic quality, and on this account it is sometimes made use of to take a hive without destroying the bees. This too as well as the former is sometimes used as a styptic. It is used to carry fuel in from a distance.

Bull. 435. 2—*Schæff.* 184—*Mich.* 97, 3 *and* 4—*Gled.* 5. 5—*Bolt.* 117. *c. d. e.*

Sometimes pointed at the top, sometimes a little tapering at the bottom. Surface smooth, or scurfy, or cracked; sometimes almost prickly at the top. From ¾ to 1¼ inch diameter. Root, a small bundle of black fibres.

Lycop. Bovista. 5. LIGHTF. Very common.

Var. 3. *egg-shaped.* Shaped like an egg, the small end downwards.

Bull. 435. *f.* 3; *and* 475.

Often grows in clusters. Sometimes the lower part tapers so much as to form a kind of stem; its surface is smooth, or granulated, or scurfy. About the size of a pigeon's egg. BULLIARD.

On old turf, common.

Var. 4. *pear-shaped.* Running insensibly into the preceding and succeeding varieties.

Bull. 32 *and* 475. *B. D. M.*—*Schæff.* 185, 189—*Bolt.* 117. *d.*—*Mich.* 97. 5—*Tourn.* 331. *A. B.*—*J. B.* iii. 848. 2—*Gars.* 279. 3—*Sterb.* 29. *F.*

One to 2 inches or more in diameter. Tapering at the base, sometimes so as to give a stem-like appearance. Surface smooth, or granulated or rough as if prickly. Substance within grey, changing to brown. BULLIARD. In clusters. About 1¼ inch high, and ¾ diameter. Pear-shaped, puckered towards the root, not filled with dust, therefore easily compressible. Brown on the outside, thick set and rough with rising dark brown prominences, on a ground of a lighter brown. Inside covered with a soft woolly substance, amongst which the dust is lodged. A receptacle, or more solid tuft of the same woolly substance also rises up in the middle from the root. Such is the description of the smaller specimens, the larger ones are shaped like the head of a knobbed walking-stick; varying greatly in size, from 1 to 2 inches high, and from ½ to 1½ in the greatest diameter: bursting at the top. Colour white. *Surface* studded with rising papillæ, of different heights, some blunt, others pointed and black at the points. Studs on the stem part much fewer than on the globular part. *Inside* white when young, greenish grey when elder. The bulbous part more solid, the stem part more cellular.

Lycop. Bovista. γ HUDS. ζ HUDS. *L. Bovista.* 2. LIGHTF.

Pastures, Edgbaston. Aug.—Oct.

Nearly allied to this is another sort which I have observed in old pasture land in the month of May, after much rain. This is perfectly stemless, but rather puckered towards the root; 3 inches high, and as much in diameter at the top, which is flatted and set with pointed papillæ radiated at the base. There is a small hollow within just above the base. The shape is exactly that of *Bull.* 450, *f.* 1, but he describes his as being smooth.

Var. 5. *winter.* Plaited at the bottom; turban-shaped; with or without a stem.

Bull. 72, *and* 475, *E.*—*Schæff.* 186. 190—*Bolt.* 117. *a.*

When ripe and shedding its seeds, there appears like a partition between the upper globular, and the lower stem-like part; and the contents of this latter part are rather pithy than powdery and seed-like.

Lycop. Bovista. α. Huds. *L. Bovista.* 5. Lightf. In woods and pastures; late in the autumn and in winter.

Var. 6. *pitted.* The lower stem-like part irregularly pitted.

Bull. 52—*Vaill.* 12. 15—*Schæff.* 295—*Bolt.* 117. *f.*

Var. 7. *rough.* Prickly; tapering at bottom so as to form a stem.

Bull. 340.

This gradually runs into the pear-shaped variety. The prickly coat readily separates. The stem-like part is separated from the head by a transverse membrane. From 1 to 2½ inches in diameter. Bulliard.

Lyc. Bovista. ε Huds.

Var. 8. *pestle-shaped.* Stem thinnest upwards.

Bull. 450. 2, *and* 475, *F. G. H. I.*—*Fl. dan.* 1139, *and* 1140 —*Bolt.* 117. *g.*—*Vaill.* 12. 16—*Schæff.* 187—*Mich.* 97. 1—*Gled.* 5. *Lycoperd. f.* 4—*Mich.* 2—*Mich.* 98. 1.

Surface rough or smooth. Stem generally thickening downwards. Globular part from 1 to 2 inches diameter. Stem near 3 inches high, and about 1 inch diameter. Bulliard.

Lycop. Bovista. η. Huds. *L. Bovista.* 3. Lightf. Woods, [near Bath. Mr. Stackhouse.] Summer and Autumn.

Var. 9. *flat-topped.* Nearly cylindrical, but rather crooked and tapering upwards; flat at the top, with a thin edge.

Bolt. 117. *b.*

Near the Red Rock, Edgbaston Park. May.

Var. 10. Stem very thick: pileus convex: the whole plant set with fine pencils of soft hairs.

Brown yellow; from 5 to 6 inches high; the stem 2 and the pileus full 3 inches diameter. Mr. Stackhouse.

globo'sum. LYC. (BOLT.) Stemless; white, changing to black; a regular globe, with only two coats.

Bolt. 118—*Sterb.* 29. *H.*

Snow white when young, and white within; black in decay. Opens with a very large aperture: diameter about 2 inches. BOLTON.

Fields, very common.

defos'sum. LYC. (BATSCH.) Stemless; leathery, globular; when open the coats turning in; half buried in the earth.

Batsch. 229.

Rudely semi-globular when ripe, 1½ to 2 inches diameter, compressed, and opening with large rents at the top, when quite open the coats curl inwards. Base rude, knotty, buried in the earth. *Skin* thick, leathery, strong, dirty yellow white, or brown, very uneven, but not rough. Powder brown dirt colour, not evidently intermixed with woolly fibres, but brittle. BATSCH.---More leathery than any I have seen, with a very large leathery root. Mr. STACKHOUSE.

Drawing sent me by Mr. Stackhouse, but no habitat.

ardosia'ceum. LYC. (BULL.) Stemless; nearly globular, flexible, purplish lead colour, red within, changing to brown.

Bull. 192, *the* 4 *lower figures to the right hand.---Batsch.* 166.

Grows on the ground only. Exists long after the dispersion of the seeds, and rattles like parchment. BULLIARD.

Common on sandy heaths in Norfolk. Mr. WOODWARD.

(4) STEMLESS; small.

gossyp'inum. LYC. (BULL.) Head pear-shaped, white, cottony, taper at the base: seeds brown.

Bull. 435. 1.

Head from 1 to 2-10ths of an inch diameter, wholly brown when old. BULL.

On rotten wood.

pisifor'me. LYC. Stemless, globular, rough: mouth perforated.

Jacq. misc. i. 7.

The size of a pea; sitting, crowded, brownish, rough with minute warts opening at the top. Mouth smooth. Nearly allied to the L. epidendron, but has only one coat, whereas that has two. JACQ. Mr. Bulliard from inattention to this circumstance has placed it as a variety of the L. epidendron. It is either tawny or smoke-coloured, but always rough and warty, whereas the Lycoperdon epidendron is smooth.

LYC. Clustered, parasitical: mouth many-cleft, torn; dust tawny. epiphyl'lum.

Small, sitting, tawny, variable in figure. RELH. *n.* 983. not Lyc. epiphyllum of Lightfoot, which is Trichia turbinata.

Border white, granulated. Centre red orange, powdery. This powder is composed of egg-shaped particles which are probably the seeds.

The spots on the leaves of Sorbus aucuparia consist of minute globules intermixed with wool-like fibres. On examining many of them in different states I at length found a small maggot in some of the younger spots, so that the globules are probably its excrement, and the fibres the woody fibres of the plant unfit for its food. Aug. 1798.

On the back of the leaves of Tussilago Farfara, very common. Decaying wood, leaves, and mosses. [On the leaves of T. Petasites. Mr. WOODWARD. On those of the Barstia viscosa. Mr. STACKHOUSE.] Aug. May.

LYC. White, spherical, solitary, parasitical, sitting, containing a white powder, and opening at the top with many clefts. inna'tum.

Sowerby 53—*Ray Syn.* 3. 1.

First observable like greenish tubercles within the outer cuticle of the leaf on which it grows, from under which it emerges of a white colour and a widely conical form with a small pore at the top. This small opening gradually enlarging it becomes glass or pitcher-shaped, the edge tearing into numerous segments. The cavity appears filled with a white powder, mixed with wool-like fibres. The whole becomes yellowish and then brown, much resembling in this advanced age the fructification of a Polypody. Allied to the Lycoperd. epiphyllum, but differs from that in growing single, not in clusters, in being white, not orange coloured, and in the mouth not opening into 8 or 9, but into many irregular clefts. PULTENEY in Linn. Tr. ii. 311.

Lycoperdon Anemones. ibid. *Æcidium fuscum.* RELH. *suppl. Conjuror of Chalgrave's Fern.* On leaves of the Anemone nemorosa. Mr. Relhan has since seen it on the Adoxa moschatellina, Carduus arvensis and Betonica officinalis. Mr. Gough also found it on the root-leaves of the latter plant, in the month of May.

cine′reum. Lyc. (Batsch.) Blue grey; globular, rough and branny: seeds like sand, large, black, intermixed with zigzag white fibres.

Batsch. 169—*Mich.* 96, 9.

About the size of a pin's head; brittle. Batsch.

Found by Mr. Relhan on rotten leaves in Madingley Plantations, Cambridgeshire. Aug.

epiden′-drum. Lyc. Small, globular, brittle: bark and dust purple.

Sowerby 52—*Bull.* 503, *and* 192, *the lower left hand and the upper right hand figures.*—*Bolt.* 119. 1.—*Fl. dan.* 720—*Schæff.* 193—*Buxb.* v. 29. 2—*Mich.* 95. 2. *A.*

This plant is globular, from ¼ to ½ inch diameter. When unripe the flesh is red; when ripe, the seeds are pinky grey.

It is either, 1. Orange coloured and smooth.
2. Vermillion coloured; black at the bottom.
3. Lead coloured; smooth.
4. Bark grey brown; salmon-coloured within.

This might have been referred to Reticularia Lycoperdon, but that it rents open at the top. From the size of a pea to that of a horse-bean. Having only one coat it might arrange with the Lyc. pisiforme.

In clusters on the stumps of fir trees. May.

The tawny and smoke coloured varieties of M. Bulliard belong also to the Lyc. epidendrum, but it does not appear that they have yet been found in this island.

An elegant little fungus when fresh. Purple; frequently confluent. Mr. Woodward.

Lyc. variolosum. Huds. On rotten wood, after rains. [At Field Dalling, Norfolk, on an old block. Mr. Woodward. About Packington.] Aug.—Oct.

fra′gile. Lyc. (Dickson.) Parasitical, mostly sitting, inversely egg-shaped, brown: bark shining, brittle: meal black, with soft hairs intermixed.

Sowerby 136—*Dicks.* 3. 5.

Pear-shaped, about 1-10th of an inch high, and nearly half as much in breadth. *Stem,* when any, membranaceous. It grows in clusters, and if the head when young should prove to be whitish, transparent, or bladder-like, it must be referred to the genus Mucor. **Dickson.**

On ling, moss, leaves of ivy, &c.

RETICULA'RIA. Roundish or oblong: soft and gelatinous when young; when older firm, friable, tearing open indiscriminately and discovering seeds entangled in capillary fibres, reticulated membranes, or leather-like cases.

Ob. Never subterraneous; generally growing on other vegetables; seldom with stems, cushion-shaped or globular. Sometimes serpentine in its figure. **Bulliard.**—It is nearly allied to the genus Trichia, and also to some of the Lycoperdons. It seems to include what Haller intended by his new genus **Fuligo**; and probably a little more observation will demonstrate that neither the Fuligo of Haller, nor the Reticularia of Bulliard, can properly embrace the whole of the other, and therefore that both must be adopted.

Ret. Stem conical, head convex, flat underneath; whitish. hemisphe'rica.

Sowerby 13—*Bull.* 446. 1.

The size of a large large pin's head; white, opening at the top and then discovering the fibrous matter and seeds of a reddish brown colour. Bulliard says the head is divided into cells.

On dead leaves, sticks, and on moss, in woods and moist places. See Sowerby's admirable coloured plates of English Fungi; but in the text read pl. 13, not pl. 12, as printed by mistake.

Ret. Heads cushion-like, sitting, white, cottony. carno'sa.

Bull. 424. 1.

Nearly egg-shaped, larger than a pea, clustered together; fleshy; harder with age, and filled with a black substance marbled with white. **Bull.**

Mucor carnosus. Dicks. fasc. iii. 23. On rotten wood. Sept.

Ret. Stemless: capsule membranaceous, somewhat egg-shaped, fibrous within. Lycoper'don.

Bull. 476. 1—*Bolt.* 133. 2—*Mich.* 95. 1, *Lycogala*—*Gled.* 6. *Mucor f.* 1. *a.*

Brown and somewhat pear-shaped when young; white and egg-shaped when old. From ½ inch to more than an inch long, and half as much in diameter. BOLTON.

Mucor Lycogala. Bolt. *Lycoperdon fuscum.* Huds. On rotten trunks of trees. Sept.—May.

Var. 1. Silvery grey changing to brown; powdery and brown within.

Bull. 446, 4—*Schæff.* 195. 3.

I was long doubtful under what genus this ought to be placed. It rents open indiscriminately, which excludes it from the Lycoperdons, and in its want of evident woolly fibres or membranes it appears to differ from the Reticularia, and the powder not being black excludes it from the Fuligo of Haller. But in the larger specimens and in its more advanced stages of growth, the woolly fibres become sufficiently evident. I have always found it upon cloven oak rails. It is generally egg-shaped, but flatted on the side next the rail, to which it adheres by a large surface, without any evident root. It is from the size of a large pea to that of a Spanish chesnut. Its colour, brown, or reddish brown like a chesnut, but this latter colour only appears where it loses its outer skin, which is silvery grey. The surface is smooth and shining, the whole substance very light, and the coats very thin and brittle. The powder is of a reddish brown colour, and so extremely fine, that the most powerful microscope is necessary to shew that its component particles are egg-shaped. When rubbed upon the hand it prevents its being wet though immersed in water.

This extraordinary plant grows on decayed stumps of wood, rails, &c. and at first oozes out a white froth, which, in time, becomes more dense, varying greatly in shape and colour. April. Dec.

sinuo'sa. RET. White, oblong, waved, pointed.

Bull. 446. 3—*Sowerby* 6—*Batsch.* 170.

This consists of numerous oblong white streaks, raised above the surface of the bark on which they grow. They are about 1-3d of an inch long, scarcely the 20th of an inch broad. They open on the upper side at a kind of seam which extends the whole length of the plant, and are filled with a downy matter.

Discovered and drawn by Mr. Stackhouse, who found it on the green bark of the willow, near to the bottom, where it lies in or near to the water. Mr. Sowerby found it in woods and under damp hedges, on various kinds of herbage.

hydnioi'des. RET. White, cobweb-like.

When magnified it appears beset with crooked spicula tapering to a sharp point.

Found by Mr. Stackhouse overspreading a leaf of the Veronica Chamædrys.

Ret. Yellowish, viscid, slimy; of various shapes. septi′ca.

Schæff. 194—*Fl. dan.* 778.

This always grows on decayed wood; is of a smooth uniform substance, not wrinkling like the Ret. ovata. In drying it forms a smooth, thin, shining coat, instead of the scales which compose the outer coat of the latter. At first it resembles thick cream, or the running of cream cheese. Mr. Woodward.

Mucor septicus. Linn. On rotten wood, &c. [On old stumps of trees, frequent. Mr. Woodward.] Sept.—May.

Var. 1. Whitish.

Bull. 424. 2.

Large, cottony and soft when young, brittle when old. Seeds in large membranaceous cells. Bulliard.

Reticularia hortensis. Bulliard. About Solihull, Warwickshire.

Var. 2. Reddish.

Schæff. 195.

Have frequently seen it tinged with red, and sometimes more so than the fig. in Schæffer's plate. Mr. Woodward.

Ret. Stemless, egg-shaped, mucilaginous, hairy, yellowish: gills cellular, vanishing, turning to dust, blackish: seeds black, adhering to threads. Schæff. *ind.* 132. ova′ta.

Schæff. 192—*Bolt.* 134.—*Mich.* 96. 2—*Bull.* 380. 1.

On moss or leaves bright yellow; on tanner's bark pale brown, and on this last it sometimes covers a surface of more than a foot diameter. Haller ranks it, as Lightfoot observes, under his genus *Fuligo*, with the characters of which both this and Lycoperdon epiphyllum correspond. Mr. Woodward.

M. septicus. Lightf. 1073. Mr. Woodward. Woods on grass and other herbage. Aug.

Var. 2. White, frothy, large, turning to a black powder.

Bull. 326.

I once found this on the stump of an elm which had been sawn off close to the ground, of a very great size, not less than

½ inch think in the mass, and from 12 to 15 inches diameter. It continued white about 5 days.

Reticularia alba. Bulliard.

The reader is indebted to Mr. Stackhouse for the following history of this remarkable plant, the circumstances of which there is reason to believe also apply to the Retic. septica.

Its first appearance is like custard spilt upon the grass or leaves. This soon becomes frothy, and then contracts round the blades of grass or leaves in the form of little tubercles united together. On examining it in its different stages under the microscope, it first appeared like a cluster of bubbles irregularly shaped, and melting into one another. In the second stage it appeared imbricated or tiled with open cells, the edges of the cells beautifully waved. A blackish powdery matter on the surface of the cells now gives the plant a greyish cast. In the third stage the wavy imbrication disappears, and the plant settles into minute tubercles united together. Some of these are closed, but many appear as if torn open, and out of the cavity emerge little downy strings with irregular shaped terminations, and other similar irregular bodies on the same strings, like the heads of some of the genus Mucor, but nothing of a *network*, from whence Bulliard has denominated the genus. It seems nearly allied, in its last stage, to the Lycoperdons, and is not very unlike the Retic. Lycoperdon, as figured by Bulliard.

se'getum. RET. Brown black, parasitical, fibrous within.

Bull. 472. 2.

This is the Smut, so frequently found upon the ears of different sorts of growing corn, and also upon grasses. It consists of very minute egg-shaped stemless capsules, at first white, but the thin white coat soon bursting, it pours out a quantity of brown black powder, mixed with wool-like fibres. Aug.*

SPHÆ'RIA. FRUCTIFICATIONS mostly spherical, opening at the top, whilst young filled with jelly, when old, with a blackish powder.

OBS. Grows on the bark or wood of other plants. Capsules often immersed, so that their orifices only are visible.

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* In an ingenious paper in the Linn. Tr. Vol. 5. the Rev. W. Kirby has endeavoured to throw additional light on this interesting subject, and seems to have proved the different kinds of blights to be principally occasioned by several minute, parasitical Fungi, and that the evil may be greatly eradicated by subjecting the seed to proper dressings, as washing with spring water, slaking with lime, &c.

Obs. This genus has been much enlarged, in consequence of the attention lately bestowed on the minuter Fungi, but I cannot consent to arrange any of the Clavaria under it, for though the discoveries of Micheli and some later botanists, have shewn in some species of Clavaria an agreement in the structure of the capsules with those of the Sphæria, yet Schmidel has demonstrated a similar structure in still other species of Clavaria, and it most probably prevails in all, so that the two Genera must on this ground be melted into one, notwithstanding the very striking differences in other respects. Indeed if this principle were allowed, it is probable that many of the Lichens must also be brought into the same Genus, nor is it easy to say where the confusion would end. Under this Genus several plants are placed which I am aware do not very well accord with their situation, but as our knowledge is not yet sufficient to enable us to strike out an unexceptionable arrangement of them, it is perhaps better to submit to the present inconvenience, than to increase the confusion by a premature attempt at reformation. Mr. Bulliard has divided the Sphæria of Haller into two Genera, viz. Hypoxylon and Variolaria; his genus Sphærocarpus also contains one or two species, which some would think might associate with the Sphærias. But though I have not adopted Mr. Bulliard's method, for reasons just now assigned, yet I am persuaded that something like it will soon be thought necessary.

(1) With a Stem.

Sph. Head roundish, brown, supported on a stem. Dicks. 22. entomorrhi′za.

Dicks. 3. 3.

Stem single or double, somewhat compressed, 2 inches high and upwards. *Head* spherical, granulated on the surface. Dicks. This having been called a Sphæria by the authority above-mentioned, must stand under this genus, but the mode of fructification does not appear to have been sufficiently attended to. Its habit speaks it to be a Mucor.

On the dead larvæ of insects in woods near Bulstrode, Buckinghamshire. Autumn.

Sph. Head egg-shaped, blue grey to sea green; stem short, slender. glau′ca.

Bull. 470. 2—*Bolt.* 120. 2—*Batsch* 169.

In the specimens and drawing I received from Mr. Knapp, the stems are rather more distinct than they are represented in Mr. Bolton's figures. When young white, when old black within, the seeds dispersed amongst fibres, which properly refers it to the Trichia, though the fibres are less numerous, and do not so completely fill the capsules as in that Genus.

Lich. cæruleo-nigricans. Relh. 847. *Sphærocarpus capsulifer.* Bulliard. On Braham Moor near Leeds. On a dead leaf. Mr. Knapp. Nov. Dec.

(2) Stemless.

tomento'sa. Sph. Simple, clustered, snow-white, downy. Relh. 1107. Stemless, incorporated, somewhat downy. Bolt.

Bull. 492. 1—*Bolt.* 125—*Mich.* 54. *ord.* 37. 5.

Crust none. *Spherules* minute, globular, covered with a snowy down, sometimes confluent, marked with a few black minute dots, on losing their down turning black, become indurated and permanent. *Flesh* black. Relh. *suppl.* ii. 31.—Fixed to the inner bark of dead branches, forcing its way through the outer bark. It is in clusters, each cluster about the size of a large mustard seed. Bolt.

S. obducta. Bolt. Decayed wood in Madingley plantations. Relh.—On fallen decaying branches of trees. Bolt.—Aug. Sept. Relh.—Feb. Bolt.

niv'ea. Sph. Very white, in clusters, tubercled.

Sowerby 219.—*Hoffm. crypt.* 1. 6. 3.

Tubercles small, bellying, lopped and perforated at the top; white, but the perforation black. When the outer coat is separated, they appear entirely black. Hoffman.

On the bark of trees in a wood near Gamlingay. Mr. Relh. June, July.

vir'ides. Sph. Simple, globular, green: bark granulated: granules brown, Bolt.

Bolt. 121. 2.

About the size of a white mustard seed, green, when dry pale brown. Bolton.

On small sticks and stems of plants when in decay.

sanguin'ea. Sph. Simple, egg-shaped, blood-coloured, perforated at the end. Bolt.

Bolt. 121. 1.—*Bull.* 487. 3.

Thickest at bottom, the size of a poppy seed, in clusters, opening at the top, blood red, shining, white within. Bolton.

Hypoxylon Phœniceum. Bull. 171. On rotten wood beside the spring of Elm Cragg Well, at Bell Bank near Bingley, Yorkshire. June.

Sph. Simple, clustered, scarlet, very small. Weig. mo'ri.
obs. 45.

Bolt. 120. 1—*Weig. obs.* 2. 11.

Crust none at all. *Spherules* in heaps, but not confluent, globular, very small, bright scarlet. Dicks. Narrowest at the base, orange colour when young; bright scarlet when full grown; black in decay. Bolton.

On the decayed bark of trees.

Sph. Simple, in irregular clusters, of a red lead colour: grega'ria,
crust whitish, tender. Weig. *obs.* 43.

E. bot. 2151—*Weig. obs.* 2. 10. *a.*

Crust thin, smooth, whitish. *Spherules* very minute, irregularly crowded, often in a stellated form, closely compacted; red. Dicks.

On the bark of trees, particular the cherry. Feb. April.

(*Spiloma tumidulum, E. bot. E.*)

Sph. Dull red, clustered, resembling a strawberry. fragifor'mis,
Hall. *n.* 2190. Dicks. 24.

Hoffm. crypt. i. 5. 1—*Hall. enum.* 2. 10, *at p.* 91, *hist.* 47. 10, *at* ii. *p.* 48.

When young red, when old black. Dicks.—Rough with granulations; substance hard, thick, hollow and black within. Haller.

On rotten wood. Sept.

Sph. Compound, solitary, sometimes on a stem: Tremelloi-
globular, purple, somewhat jelly-like. Weig. *obs.* des.
46.

Bull. 284—*Weig. obs.* 3. 1—*Bolt.* 127. 1—*Hoffm. crypt.* i. 6. 2—*Dill.* 18. 6—*Mich.* 95, 3—*Gled.* 6. *Mucor. f.* 8. *a.*

This plant is not absolutely without a stem, but the stem is very short and nearly as thick at the top, entering into the substance of the bark on which it grows. In some specimens the top part is of a full vermillion, and the lower part of a yellowish colour. In other specimens this order of colour is reversed. It is common in this latter variety to find young shoots growing up close to the stems of the older plants, the heads of which have the full vermillion colour. It varies from the size of a pin's head to that of a hemp-seed. Bolton's figure makes it decidedly a Sphæria, but the other figures do not. Hoffman says he has never found the spherules or capsules which constitute a Sphæria; Bolton says he sometimes found them. Possibly there may be two plants, the one Male, the other Female.

Tremella purpurea. Linn. Huds. Lightf.—*Sph. miniata.* Bolt. On pieces of half rotten sticks, plentiful.

Autumn, Winter, and Spring.

lycoper-doi′des. SPH. Compound, convex, mostly solitary: pith mealy, black: rind tawny, friable. WEIG. *obs.* 47. *n.* 10. *a.*

Weig. obs. 3. 2. *a.*

Parasitical, sitting, roundish, scattered, at first tawny, soft, succulent, when more advanced the bark falling, they become brown and indurated, at length opening, appearing quite full of a black compact powder. LINN. *Syst. pl.* iv. 626.—Some globular, others oblong, somewhat flatted, solitary. LINN. *Syst. nat.* III. 234.

Lycoperdon variolosum. On the decayed bark of trees, and on sticks. Jan.—Dec.

riccioi′dea. SPH. (BOLT.) Leathery, branched, tawny, spreading; segments cloven.

Bolt. 182.

From 1 to 2 inches diameter; tough, hard, leathery, deep tawny, tending to orange colour. White within. Surface roughish from the prominences of the tubercles underneath. BOLTON.

On branches of sallow and hazel, when so decayed as to crush between the fingers.

mammo′sa. SPH. Crust olive green, inveloping the capsules which are solitary, semi-globular, black.

Hoffm. crypt. 1. 3. 2—*Fl. dan.* 1079—*Mich.* 55. *ord.* 2. 1.

Though growing many together, they are never united. Mr. WOODWARD. Surface rough with short upright hairs. When very old the capsule appears to be formed of two coats, as was first observed by Mr. BROWN.

S. mammiformis. Relh. n. 987. On rotten wood, and the roots of trees. Sept.

Sph. Stemless, clustered, globular, ash-coloured, wrinkled, large. Bolt. rugo'sa.

Bolt. 123. 2.

From ¼ to ½ inch diameter, rough, hard and dry like wood. Bolton. Not Sph. rugosa of Weigel.

Southowram near Halifax, on the bark of the dead and fallen elm branches.

Sph. Large, thick, black, pustular. max'ima.

Bull. 487. 1—*Hoffm. crypt.* I. 1. 2—*Bolt.* 181—*Mich.* 54. *ord.* 2. 1.

Grey black, inflated, friable; surface uneven; cells distinct; from ¼ to ¾ of an inch diameter, Bull. or more.

On rotten wood, and decayed roots on the ground.

Sph. Black; roundish, convex, dotted. Hall. *n.* 2192. fraxinea.

Sowerby 160—*Bolt.* 180—*Schæff.* 329.

Convex, smooth without; substance within consisting of a number of concentric layers composed of minute tubes or threads pointing from the centre. Ray. Very irregular in shape, from ½ to more than 1 inch in diameter. *Pustules* scarcely visible to the naked eye. Relh. *suppl.* i. 34. Sometimes from 2 to 4 inches diameter; opening at the top when ripe and shedding a large quantity of black powder. It is eaten by a maggot, which also can eat through a deal board, as happened to the bottom and sides of a drawer in which I had kept some of these plants. This differs from the Sph. maxima in being more woody and shewing concentric circles when cut. It is generally more completely sessile than it is represented in the figures; and in its younger state is of a dirty chesnut colour.

Lycoperdon fraxineum. Huds.—*Sph. concentrica.* Bolt. On ash trees when rotten or in a decaying state, and observed on no other tree. Ray. [In large quantities on an old ash by the foot road between Thornbury and Alveston, Gloucestershire; and on an ash overhanging the road leading up the first hill betwixt Queen's-ferry and Edinburgh.] May.

Sph. (Lightf.) Black, convex; flesh black. Hall. *n.* 2187: stemless, incorporated, tubercled, brown: spherules of the same colour. Bolt. tuberculo'sa.

Bolt. 123. 1—*Weig. obs.* 3. 2. *b. c.*

About 1-10th of an inch over. It always grows on the inner bark of the branch, forcing its way through the outer bark, Bolt.

On dried sticks, decayed bark of trees, LIGHTF. and rotten wood. DILL.—Most commonly on hazel. BOLT.

Sept.—April.

nit'ida. SPH. Simple, mostly solitary, neatly imbedded; shining, black, crust sheath-like, cracked. WEIG. DICKS.

Weig. obs. 2. 14.

Crust pale brown or yellowish, cracked, inclosing the spherules to half their thickness. Powder black. WEIG. obs. p. 45.

On the bark of trees.

acuta. SPH. Black, conical, pointed, solitary, very minute.

Hoffm. crypt. I. 5. 2.—*Sowerby* 119.

In damp shady places on small twigs stripped of their bark, we find black dots, the size of a poppy seed, rough to the touch but without any crust. These when magnified appear shining and conical, with an extremely fine perforation at the end, from whence issues in warm and moist weather a viscid glaucous fluid. HOFFMAN.

Mr. Relhan found it on the decayed stems of nettles. Mr. Brown has also found it about Edinburgh on the decayed stems of nettles, and not on any other plant. Feb.—Apr.

cortica'lis. SPH. Cup-shaped, black: capsules numerous, shining, globular.

Bull. 492. 2.

Fixed so firm to the bark on which it grows, as scarcely to be separable.

On the bark of elm trees. Mr. RELHAN.

corona'ta. SPH. Black, egg-oblong, clustered; the points of the capsules perforating the bark in pencil-like bundles.

Hoffm. crypt. I. 5. 4 *and* 5.

Oblong, small, black, shining, imbedded in the bark on which they grow. Capsules placed in a circle. Crowned by the styles projecting through the outer coat of the bark. These styles are thickest near the end and perforated. HOFFM.

Found by Mr. Relhan on decayed branches of trees.

Sept.—Oct.

ni'gra. SPH. Shining black, globules on an uniform brown black ground.

Tubercles very small, perfectly convex, partly imbedded in the crust, not closely crowded together. Ground or crust thin, uniform, smooth but not polished, nearly black.

On the bark of oak trees in the pleasure grounds at Enville, Staffordshire. July.

Sph. Stemless, incorporated, black, shining. Bolt. depres'sa.

Sowerby 216—*Hoffm. crypt.* I. 4. 1—*Bull.* 432. 2—*Bolt.* 122. 1—*Dill.* 18. 7—*Weig. obs.* 3. 3—*Hall. enum.* 2. 9, *at p.* 91, *hist.* 47. 9, *at* iii. *p.* 88.

Intensely black, shining, hard, granulated, white within.

Sph. disciformis. Hoffm. and his Sph. bullata i. 2. 1, is possibly the same.

On the outer rind of decaying branches of trees. Bolt.

Sph. (Relh.) Black, clustered, sphærical, mouth entire. Lightf. 1069. Bolt. aggrega'ta.

Hoffm. crypt. ii. 3. 3—*Bolt.* 122. 2—*Lightf.* 31, *lowermost figure, at p.* 962—*Batsch* 180.

Small, black, about the size of and resembling the head of a black hair pin. Relh. *suppl.* i. 35. Very much resembling fine gunpowder, but white within. Bolt. Perfectly globular, the size of small pins heads; grows in thick clusters; principally on decayed stumps of trees. Mr. Woodward.

Sph. Bombardica. Bolt.—*Lycoperdon nigrum.* Lightf.—*Lyc. aggregatum.* Huds.—Trunks of rotten trees and rotten wood; mostly on such as have been sawn off: but sometimes, though less luxuriantly, under the loosened outer bark. Oct.—Sept.

Sph. Stemless, incorporated, oblong, furrowed. Bolt. sulca'ta.

Bolt. 124—*Mich.* 54. *ord.* 37. 2—*Hoffm.* 3. 2. *e.*

About the size of a flea, blackish, oblong, with a deep furrow extending from end to end. Bolton.

Lichen scriptus. β pulicaris. Lightf. 801. On decayed branches of ash trees. Bolt.—[Norfolk and Suffolk. Mr. Woodward.]—Mr. Griffith has shewn that this is not a Sphæria, but the old state of the Lichen tricolor. See page 24.

Sph. Simple, solitary, very small, black: crust snowy white, powdery. Weig. Dicks. byssa'cea.

Weig. obs. 2. 9.

Crust white, powdery, spreading. Weig. 43.

On the bark of oak trees: [and on the trunks of ash about

Craig Lochart, Collington, and Woodhall in Scotland. Mr. Brown.] Jan.—March.

stig'ma. Sph. Black dots in clusters on a dark coloured crust.

Hoffm. veg. crypt. i. 2. 2.

This is formed beneath the outer bark, and when that gives way it is seen wide spreading and investing the branch; of a black or black-brown colour, and cracked across. A line in thickness, and its figure roundish or kidney shaped; brown or whitish when cut. Hoffman.

On the authority of Dr. Sibthorpe, who observed it on the fallen branches of trees.

scrip'ta. Sph. Black, rough, granulated, opening at the top: crust white, with irregular black streaks.

Dill. 18. 3. (*the other figures quoted under Lichen scriptus represent the crust only previous to the formation of the Sphæriæ.)*

The Lichen *scriptus* is only the ground of this plant, as specimens which Mr. Griffith favoured me with clearly demonstrate. The tubercles are at first about the size of a very small pin's head, and bordered with the white crust, but in time they grow much larger, lose the white border, become rough and granulated on the surface, more raised above the crust, and sometimes encompassed by a black ring. An opening next appears on the top of the tubercles, and this continues gradually to enlarge, the outer substance mouldering away, and at length there is only left a hollow black cup sunk in the crust.

Lichen scriptus. On the bark of oak, birch, and other trees. Mr. Griffith.

bras'sicæ. Sph. Of various shapes, black; flesh white. Dicks. 23.

Hoffm. crypt. ii. 5. 2—*Bolt.* 119. 2.

Crust none. *Spherules* simple, often confluent, of various shapes and sizes, from that of mustard seed to that of a pea. Dicks.

Elvela Brassicæ. Hoffman. Certainly not properly a Sphæria.

On rotten leaves of cabbage, vulgarly supposed to be cabbage seed, and on rotten roots of parsnips; common.

TRIC'HIA. In clusters: mostly fixed to a membranaceous base; capsules globular or oblong; seeds escaping from its whole surface through openings made by the separation of the fibres.

Obs. Capsules globular, oblong turban-shaped, or nearly cylindrical, transparent, in colour and tenacity like cream. Opake when older, columnar, filled with woolly fibres, its coat composed of a fibrous texture, at first compact, opening gradually, and then resembling a lock of wool, the seeds escaping through every part of the surface. This includes also the Sphærocarpus of M. Bulliard, which seems to differ only in consistence.

(1) With a Stem.

Tric. Rusty brown: stem hair-like; capsule egg-shaped, changing to cylindrical, perforated by the stem. nu'da.

Bull. 477. 1—*Sowerby* 50—*Mich.* 94. 1. 2—*Clathroidastum*—*Gled.* 4—*Stemionitis. f.* 2. 5. 6. 8—*Bolt.* 93. 1—*Batsch* 176—*Fl. dan.* 216—*Schæff.* 297.

Stem black, shining, extending through the capsule up to its top. Capsule white, egg-shaped; rusty brown with age, and nearly cylindrical, the fibres of the coat opening so as to suffer the seeds to escape between them. It varies in a longer or a shorter stem. The whole plant is from 3 to 5 lines high. Bull.

Clathrus nudus. Linn. On rotten wood, particularly in hollow stumps. May—Oct.

Var. 2. Stem broadest at the base. Capsule always cylindrical.

Bull. 477. 2.

Rusty brown. Capsule perforated by the stem. Bulliard.

On the stump of a fir, and on a decayed leaf of a fir, in Coomb Grove near Bath. Mr. Stackhouse.

Tric. Stem very short; Capsule long, egg-shaped, not perforated by the stem: cupped at the base. denuda'ta.

Bull. 502. 1—*Sowerby* 49—*Mich.* 94. 1, *Clathroides*—*Bolt.* 93. 2—*Jacq. misc.* i. 6—*Batsch.* 177—*Schæff.* 297—*Hall. enum.* 1. 6, *at p.* 21, *hist.* 48. 6, *at p.* 116. (*Not Schæff.* 297.)

Stem brown, very slender, about 1-20th of an inch high.

Woolly top 3-10ths of an inch high; colour of red brick, composed of woolly fibres, set with small knobs, throwing out dust when touched. *Dust* the colour of vermillion; when very highly magnified appearing composed of egg-shaped substances.

The stem supports the woolly substance, which resembles a roll of carded wool, but does not extend through it. Wholly red, except the apex, which is brownish. *Capsule* at first globular, oblong when older. JACQUIN. *Stem* hardly a line in length, not continued through the capsule. *Capsule* scarlet or tawny red, egg-shaped when young, nearly cylindrical when old, its membrane at the base remaining entire. BOLTON. The capsules in Mr. Bolton's figures not so long, nor does the colour in the young state agree with our specimens. Description of Batsch at p. 265, very good.

Clathrus denudatus. LINN. On rotten wood in damp places. Near Bungay, Mr. WOODWARD.—On the stump of a tree; Rookery, Edgbaston. June—Oct.

ru'fa. TRIC. Stem short: capsule globular, cut round; red.

Bull. 368. 1—*Schmid.* 24. i. *to* viii.

The place of this plant in a system is not easily determined. The capsule opens horizontally about its middle, like a snuff-box, or like the S. vess. of the Anagallis; the upper and under lid remaining entire; therefore it does not agree with the genus Lycoperdon which opens only at the top, nor does it well accord with the Trichia, the capsules of which stretch so as to let seeds escape between the fibres, though in some species the lower part suffers no such separation of its fibres, more nearly resembling the plant in question.

Lycoperdon rufum. DICKS. 25. 1. On rotten wood. July—Aug.

ful'va. TRIC. Stem very short, smooth; capsule tawny, globular; wood tawny.

Bolt. 93. 3—*Bull.* 387. 2—*Hall. enum.* 1. 4. *at p.* 21. *hist.* 48. 4. *at* ii. *p.* 116.

Stem white. *Capsule* varying in colour from scarlet to yellow brown; when its texture opens, the lower part remains entire on the stem. The whole plant not 1-10th of an inch in height.

Sphærocarpus Trichioides. BULL.—*Clathrus fulvus.* HUDS. —*Mucor fulvus.* LINN. On rotten wood. [About Bungay. Mr. WOODWARD.] May—Oct.

al'ba. TRIC. White, globular, changing to deep purple or black; shining: stem black.

Bull. 407. 3. *f. D.*

Capsule globular; dust red brown. Stem black, cylindrical, but flatted and broader at the base.

Sphærocarpus albus. BULL. On rotten sticks.

TRIC. Capsule on a stem, whitish: wood yellow. fla′va.

Bull. 407. 2—*Bolt.* 93. 4—*Hall. enum.* 1. 3 *and* 3. *at p.* 21; *hist.* 48. iii. *at p.* 116.

This has been supposed to be the Mucor sphærocephalus of LINN. which it may be, as Mr. Bolton remarks that the capsule turns black after the discharge of the seeds.

Clathrus flavus. HUDS. 631. On rotten wood. June—Oct.

TRIC. Yellow, as if varnished: capsules gradually tapering downward into a cylindrical stem. pyrifor′mis.

Bull. 417. 2.

Stem short. Capsule not larger than the head of a pin. Seeds and wool yellow.

Sphærocarpus piriformis. BULL. Found upon decayed wood in Shotover plantations, by Dr. Sibthorpe. Oct.

TRIC. Plant yellowish: stem very short: capsule very long, reclining. nu′tans.

Bull. 502. 3.

When young egg-shaped and white; but when the capsule gives way its contents assume an oblong figure and a brown yellow colour. Hardly ¼ of an inch high. BULL.

Observed by Mr. Dickson on rotten wood.

TRIC. Stem and capsule woolly, olive-coloured. BOLT. oliva′cea.

Bolt. 94. 2.

On putrid weeds when thrown on a heap to rot for manure.

TRIC. Stem thread-shaped, green: capsule globular, mealy. furfura′cea.

Schmid. 54. 2—*Batsch* 178—*E. bot.* 1539. (*Lichen capitatus.* ACHAR and E. bot. E.)

Sulphureus Pin-headed Trichia. Clathrus virescens. HUDS. 632—*Muco furfuraceus.* LINN. On the ground in the shade on the sides of roads and ditches, and on rotten wood. May—Oct.

TRIC. Stem thickest downwards: capsule globular, ash-coloured. globulif′era

Bull. 484. 3—*Bolt.* 94. 1—*Hall. hist.* iii. 48. 2. *at p.* 116.

Clathrus sphærocephalus. BOLTON. *Sphærocarp. globuliferus.* BULLIARD. *Mucor sphreocæphalus.* Sp. pl. *Clathrus ci-*

nereus. HUDS. In the cracks of old dry wood, at all seasons. BOLTON.

recuti′ta. TRIC. Capsule on a stem, globular; wool black.

Batsch 232.

Head roundish, after bursting the lower half remains white and membranaceous, and upon it rests an egg-shaped mass of a cotton-like texture. LINN. suec. n. 1264. The figures of M. Bulliard are rather egg-shaped than globular, and taper downwards so as to form a stem, but in the plants now before me, the stem is thinnest upwards, and there is a hollow dot at the top of each unopened head. In an elegant drawing, by Mr. KNAPP, which accompanied his specimens, the stem is equally distinct as in the figures of Batsch.

Cl. ater. HUDS. 631. *Cl. recutitus.* LINN. *Mucor cancellatus.* BATSCH.

On rotten wood. May—Oct.

[In a wood in Bucks. Nov. Dec. Mr. KNAPP.]

Lichenoi′des. TRIC. Permanent: stem awl-shaped; black: capsule lentil-shaped, ash-coloured, or black.

E. bot. 414—*Dill.* 14. 3.

The *basis* black, pithy, elevated. *Head* hemispherical above, underneath plano-concave, with a round edge, resembling the crabs' eyes of the apothecaries; ash-coloured, of the size of poppy seed. LINN. suec. n. 1287. I was favoured with specimens by Mr. KNAPP, who remarks that he has never seen it grey, but always black.

Mucor Lichenoides. Sp. Pl. *Lichen sphærocephalus.* E. bot. On rotten wood. Jan.—Dec.

(2) STEMLESS.

fragifor′mis. TRIC. Stemless; in clusters: capsules cylindrical, tawny red.

Batsch 172.

About 1-8th of an inch high, and half as much in diameter, sitting in clusters upon a common membranaceous base of the same colour; opening at the top and discharging its seeds, which, together with the fibres which connect them, are of a deep tawny saffron colour. BATSCH. Rose red when young. BULL.

Lycoperdon vesparium. BATSCH. *Sphærocarpus fragiformis.* BULL.

Mr. Relhan informs me that he has found this plant in Madingley Wood, and Wood-Ditton in Cambridgeshire.

On rotten wood, and decaying trunks of trees, Spring. [On the stump of an hazel, growing in considerable quantities: Powick near Worcester. Mr. Stackhouse.]

Tric. Stemless; turban-shaped: wool yellowish. (Huds. 632. 8.) turbina′ta.

Sowerby 85—*Mich.* 94. 2, *Clathroides*—*Gled.* 4. *Stemonit. f.* 1, 3, 7, *and* 4—*Hall. enum.* 1. 7. *at p.* 21, *hist.* 48. 7, *at* iii. *p.* 116—*Bolt.* 94. 3—*Fl. dan.* 655. 1—*Scop. ann.* iv. 2. 11—*Batsch* 173.

Lycoperdon luteum. Jacq. in syst. veg. p. 982. Relh. n. 1103. *L. epiphyllum.* Lightf. 1069. On rotten wood. Near Bungay. Mr. Woodward. Aug.—April.

Tric. Brown black; stemless: seeds yellow. fusco′ater.

Bull. 417. 5.

Sphærocarpus sessilis. Bull. Found by Dr. Sibthorpe on decayed wood in the plantations at Shotover, Oxfordshire. Oct.

MU′COR. Seeds naked, or in transparent capsules at the end of the stem.

M. Stem long, pellucid: capsule a watery globule: seed roundish. aquo′sus.

Pet. gaz. 51. 7.

Observed by Mr. Dickson on putrefying paste.

M. Stem undivided, supporting a single globular capsule. Muce′do.

Bull. 480. 2—*Fl. dan.* 467. 4—*Bolt.* 132. 1—*Mich.* 95. 1. *Mucor*—*Gled.* 6, *Mucor f.* 3. *a. f. f.* 2. *a.*—*Sterb.* 31, *more highly magnified.*

On putrid planks and other substances. Jan.—Dec.

M. Stem supporting a head; heads roundish, incorporated. glau′cus.

Fl. dan. 777. 2—*Mich.* 91. 1. *Aspergillus; f. D.*—*Gled.* 1. *Byssus.* 1. *row* 3. *f.* 4—*Fl. dan.* 840. 3, *may be the same plant.*

On rotten apples, melons, and such like substances. Jan.—Dec.

M. Stem hair-like: head spherical, like a dew-drop, with a black dot at the top. Ray Syn. 13. n. 13. ro′ridus.

Bull. 480. 1—*Bolt.* 132. 4—*Pluk.* 116. 7—*Pet. gaz.* 105. 14.

Agaricus tenellus. Huds. 621, according to Relhan. On horse dung. Aug. Sept.

urceola'tus. M. Soon fading; stem above bellying, transparent, like a dew-drop: head roundish, elastic, black. Dicks. 25. Relh. n. 1062.

Fl. dan. 1080—*Bolt.* 133. 1—*Dicks.* 3. 6.

Stem yellowish, changing to a pellucid watery blue, bellying upwards. *Head* spherical, but depressed, black, shining, when ripe thrown off with an elastic force. Dickson. This plant, having the property of ejecting the seed-vessel in the same manner that the Lycoperdon Carpobolus does, and the head, which is blackish grey, appearing to be replete with seeds like that, should the former be made a distinct genus, this might associate with it. The structure of it is clearly a membrane surrounding, and inclosing the capsule in form of a round ball at the top of the stem, which, when ripe, is exploded to some distance. This membrane is not fugacious like the Mucors; a specimen, now 6 or 7 years old, still shews the remains of the collapsed membrane, though the capsules are fallen into powder and gone. *Stem*, after the explosion of the head loses its bellying appearance, becomes cylindrical and crooked, in which state it will remain for years, if kept in a dry place. Mr. Woodward.

On horse dung: to be found early in a morning. Aug.

Em'bolus. M. Stem black, brittle-shaped, set with brown woolly hair.

Hall. enum. 1. 1, *at p.* 21, *hist.* 48. 1, *at p.* 116.

Rotten wood. Jan.—Dec.

cespito'sus. M. Stem branching; fructifications finger-like.

Bull. 504. 11—*Bolt.* 132. 2—*Mich.* 91. 4. *Aspergillus*—*Gled.* 1.—*Byssus row.* 3. *f.* 2.

On rotten vegetables in woods.

crusta'ceus. M. Stem undivided: fructifications radiating, terminating.

Var. 1. Rays of fructifications few.

Bull. 504. 11—*Mich.* 91. 3—*Aspergillus.*

Height 1 to 2-10ths of an inch. Fructifications beaded, issuing in rows like rays from the top of the stem.

Var. 2. Rays of fructifications crowded.

Bull. 504. 10—*Mich.* 91. 2, *Aspergillus.*

On rotten vegetables, and corrupted food, in moist shady places. Jan.—Dec.

M. Stem bearing fructifications in bunches. (Bolt.) bo′trytis.

Bolt. 132. 3—*Bull.* 504. 7—*Fl. dan.* 777. 1---*Mich.* 91. 4, *Botrytis*---*Gled.* 1. *Byssus, row* 3. *f.* 1.

Height from 1 to 2-10ths of an inch. Fructifications like bunches of grapes.

On a decaying plant of Boletus versicolor.

M. Crust rather leather-like: stems very short: heads or seeds roundish, white, yellow, or scarlet. ca′seus.

Bull. 504. 2.

Observed by Mr. Relhan on old cheese kept in a moist cellar, and on decayed leaves in woods. See Fl. Cantabr. Suppl. iii. p. 39.

M. Crustaceous: stems branched, creeping: seeds few, roundish, scattered, very minute, orange coloured. auran′tius.

Bull. 504. 5.

Of long duration. Found by Mr. Relhan on willows, by the rivers in Granchester meadow.

M. (Bull.) Extremely fine, yellow; consisting of stems supporting yellow seeds, singly or in clusters. chrysosper′mus.

Bull. 476. 4, *and* 504. 1.

Covering the whole surface of the plants on which they grow, and staining the fingers yellow.

I have repeatedly found it, but always upon Boleti which grew in shady places; generally on the Boletus pellucidus. Aug. Sept.

It has the same property of repelling wet that has been observed in the seeds of the Lycopodium. A specimen now before me is not wetted, though it has been immersed in a fluid for a year.

M. Growing in spots: white or green: stems very slender, branched, interwoven: seeds very minute, roundish, scattered. ligni′fragus.

Bull. 504. 6.

At first white, then deep green, often but a few together. Figure of the spots uncertain. White wood near Gamlingay. RELHAN.

argen′teus. M. Spreading, white, consisting of extremely fine woolly filaments supporting seeds.

This appears upon some of the smaller stipitated Boleti, covering the whole of the pileus and upper part of the stem. It is more durable than the M. chrysospermus.

Under the large clump of beeches, Edgbaston Park.
Aug.---Sept.

The Boleti on which either this or the M. chrysospermus are found, are always in a very tender half rotten state.

lepro′sus. M. Bristle-shaped : seeds at the root.

Mich. 91. 5. *Aspergillus.*

Caverns and arched cellars. Sept.---April.

Erys′iphe. M. White: heads brown, sitting.

On decaying leaves. Aug. Sept.

granulo′sus. M. Crustaceous, black : capsules sitting.

Bull. 504. 13.

Grows in circular spots of half an inch diameter, on the leaves of the sycamore, occupying both surfaces of the leaf. This also has been observed by Mr. Relhan, but I doubt the propriety of placing it under the present Genus.

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(*Note.*—The great difficulty in getting the Plate XXXI. (Lichens,) accurately coloured, has induced the Editor to omit it altogether; more especially, since those species may now be found well represented in the English Botany, which was not the case when our figures appeared in a former edition. E.)

W. Flint, Printer, Old Bailey, London.